

REVIEWS AND ABSTRACTS

Abstracts include edited Australian Medlars, as well as other basic sciences', orthodontic, dental and surgical literature. All inquiries regarding information on specific articles should be directed to authors. Articles or books for review should be addressed to **Dr. S.G. Jacobs, Reviews and Abstracts Editor, Australian Orthodontic Journal, C/- Royal Dental Hospital of Melbourne, 711 Elizabeth Street, Melbourne, Victoria 3000.** Offers to write abstracts or reviews of articles or texts of interest to orthodontists are welcome.

DENTAL MEDICINE & PERIODONTICS

Albrektsson, T.
(Direct bone anchorage of dental implants)
J. Prosthet. Dent. (1983) 50: 255-261

Osseo-integration is a term used to define a direct contact between lining bone and a pure titanium dental implant. This direct contact differs from the usual interposed zone of connective tissue, the so called "pseudo periodontal ligament", which is the usual sequel to the placing of an endosseous dental implant. In this paper the author reviews the biologic aspects involved in the osseo-integration technique. The importance of biocompatibility, tissue handling and response, and the control of implant loading indicate the meticulous clinical protocol which has led to an implant survival rate of 81% in the maxillae and 91% in the mandibles. Observations have been taken over a 5-10 year period.

Sydney Warneke

Allard, W. F.
(The significance of rubber gloves: Reduction of transmission of infectious diseases in dental practice)
Penn. Dent. J. (Phila) (1984) 51: 20-22

The author of this short review paper presents a case for the routine use of rubber gloves in dental practice as an important means of reduction of transmission of various infectious diseases.

Some of the infectious conditions which can be spread by saliva or blood are noted, with emphasis on Hepatitis B. Even a careful medical history will not reveal the asymptomatic carriers, and the hands of the dentist provide a means of infection of the dentist himself and subsequent patients also. Washing of hands cannot remove all contaminants. The author quotes only one study on glove permeability, but this suggests that rubber gloves are impermeable to molecules smaller than viral particles. The author favours well-fitting non-sterile gloves - much cheaper than the sterile variety but still providing a surface far more aseptic than skin.

Some disadvantages are noted, related mainly to instrument handling, but loss of tactile sensation is not considered sufficient to prevent the performance of good dentistry. Advantages noted in addition to prevention of cross infection are the easy maintenance of clean hands, and reduction in contact allergy.

Ian Chambers

Cronin, R. J. & Wardle, W. L.
(Prosthetic management of vertical root extrusion)
J. Prosthet. Dent. (1981) 46: 498-504

This paper presents the treatment of teeth with root disease or injury which can be retained as support for coronal restorations without compromising the periodontium. The first objective of treatment is to extrude the root of the tooth. To enable this a cast post core and ball attachment are placed to allow orthodontic extrusion. A temporary restoration is placed over the cast core and ball attachment leaving the ball attachment exposed.

This allows an esthetic temporary crown to be worn during the orthodontic treatment phase.

Sydney Warneke

Gouitschin, J., Nitzan, D. & Azzaz, B.
(Root resorption - review and discussion)
Oral Surg. (1982) 54: 586-590

Although many reports on root resorption have appeared in the dental literature since the advent of the roentgenogram, very little has appeared regarding the clinical significance of root resorption.

These authors in this review divided up root resorption into the classification set down by Shafer, Hine and Levy viz. (1) periapical inflammation; (2) excessive mechanical or occlusal forces; (3) replantation of teeth; (4) tumors and cysts; (5) impaction of teeth and (6) idiopathic causes.

Under root resorption, due to periapical inflammation, the authors consider whether a surgical approach to seal the defect is required. The section on resorption due to excessive mechanical or occlusal forces discusses orthodontic root resorption and suggests rightly, that this particular type of resorption will stop once the orthodontic forces have been removed. This type of resorption can reduce the tooth length by up to one half.

Replantation resorption can only be prevented if the tooth is replanted as quickly as possible.

Root resorption caused by tumors and cysts may be due to a bone-resorbing factor (BRF) found in the lining of cysts.

Root resorptions due to impacted teeth are discussed as is idiopathic root resorption.

Unfortunately, many of the unanswered questions concerning root resorption must await in-depth clinical and basic research.

Barry Feiglin

Linderman, R.A. & Henson, J.L.
(Acceptance of dental prophylaxis by the institutionalized patient)
Spec. C. Dent. (1984) 4:77-80

Institutionalized patients with moderate and severe handicapping conditions, commonly Down's Syndrome, Cerebral Palsy and Mental Retardation, may have difficulty receiving routine dental treatment. One reason that prevents their access to treatment is negative practitioner expectations. Traditionally this group has been treated in a hospital setting on an irregular basis, often with general anaesthesia.

This study assesses the ability of dental hygiene students in the general clinic setting to provide dental prophylaxis to patients with moderate and severe handicapping conditions. Treatment was considered successful if the hygienist was able to use ultrasonic or handscaling instruments to debride at least three quadrants with or without mild physical restraint. Adjuncts included soft ties or the minimal application of mild restraints by other students. Bite blocks, mouth props, gauze wrapped on bite sticks and "cerebral palsy type head rests" were routinely used to maximize access. Of 38 patients, 31 (82%) were successfully treated in the clinic or quiet room.

Although the number of patients able to be treated in a more normal environment is probably higher than expected, not all patients will be able to receive routine in-office care. A certain percentage will still require sedation or general anaesthesia. The ability to provide routine prophylaxis is important if it can prolong the interval between general anaesthesia sessions, thus reducing patient risk and operative costs.

The authors suggest that greater numbers of handicapped patients can be treated in private practice situations when simple treatment adjuncts and mild physical restraints are used.

Chris Olsen

Polson, A. Caton, J. Polson, A.P. Nyman, S. Navak, J. & Reed, B.
(Periodontal response after tooth movement into intrabony defects)
 J. Periodontol. (1984) 55:197-204

Localized intrabony defects were produced in four adult rhesus monkeys by placing elastics around isolated incisor teeth which were held in their original position with a fixed appliance consisting of anchoring bands on the cuspids connected to the incisor by a rectangular arch wire. After five months 7-8 mm pockets were produced. Two months later the elastics were removed and the pockets were treated by root planing, adequate oral hygiene and topical application of 2% chlorhexidine gluconate solution three times a week. The application of chlorhexidine was continued to the end of the study.

Three weeks after root planing, four experimental teeth were moved into and through the intrabony defects. Four other incisors with intrabony defects served as controls.

The teeth had been moved laterally approximately 6 mm over a three month period. The teeth were then held in their new positions for two months.

Examination of sections histologically showed that in the control specimens angular bony defects were present and crevicular epithelium extended to or apical to the site of root planing. The epithelium extended 2-3 mm apical to the crest of the alveolar bone.

The appearance of the experimental teeth showed that on the pressure side, the angular defect had narrowed and the space between tooth surface and bone approached a normal distance. Epithelium extended apical to the crest of the alveolar bone, extending to the apical extent of root planing. No new connective tissue attachment could be found.

On the tension side the level of attachment had not changed but the angular intrabony defect had been flattened creating a soft tissue pocket only. Abundant new bone had formed apical to the original extent of the pocket as would be expected following tooth movement.

This study shows the following:

1. Teeth with reduced, but healthy periodontal support can be successfully moved.
2. Connective tissue attachment is neither lost or gained.
3. The tooth moves through bone such that the bony defect is left behind on the tension side. A more coronal level of bone on the pressure side results but no new connective tissue attachment is formed.

Rain Papli

MEDICINE

Egger, J., Wilson, J., Carter, C.M., Turner, M.W. & Soothill, J.F.
(Is migraine food allergy?)
 Lancet (1983) 8355:2:865-869.

93% of 88 children with severe frequent migraine recovered on oligoantigenic diets (OLIGO † few or small); the causative foods were identified by sequential reintroduction, and the role of the foods provoking migraine was established by a double-blind controlled trial in 40 of the children. Most patients responded to several foods. Many foods were involved, suggesting an allergic rather than an idiosyncratic (metabolic) pathogenesis. Associated symptoms which improved in addition to headache included abdominal pain, behaviour disorder, fits, asthma and eczema. In most of the patients in whom migraine was provoked by non-specific factors, such as blows to the head, exercise, and flashing lights, this provocation no longer occurred while they were on the diet.

Braham Rabinov

Valentine, P.A. & Manolas, E.G.
(Balloon dilatation of coronary arteries. Four years' experience of coronary angioplasty)
 Med. J. Aust. (1984) 140:700-705

The results of 126 consecutive balloon dilatations of coronary arteries, carried out in 110 patients between 1980 and the end of 1983, are reported. The follow-up periods ranged from one to 47 months. The primary success rate was 74%, and the long-term success rate was 65%. In successful cases, the diameter of stenosis was changed, on average, from an initial 88% to 33%. Acute occlusion of the vessel occurred on 13 occasions (10%). Of these, myocardial infarction occurred in eight (6%), and emergency bypass grafts were performed in nine (7%). One of these 13 patients died (case fatality rate, 0.8%). Occlusion of the dilated vessels did not occur after the patients were discharged from hospital. However, stenosis recurred in 20 of 80 patients with successfully dilated arteries (25%). Dilatation was repeated in 16 in these, and stenosis had not recurred at the three-months' follow-up. There has been a marked improvement in the success rate of this procedure over the years. It is concluded that balloon dilatation is an effective and safe alternative to bypass graft surgery in selected patients with coronary artery disease.

Braham Rabinov

BOOK REVIEWS

A Manual of Four-Handed Dentistry
 By Paul, J. Ellis

Published by Quintessence Publishing Co., (Chicago) 1980.
 Price \$66.00

This small manual is useful for the orthodontist who is interested in practising comfortably and efficiently.

Chapters 1 and 2 deal with basic principles of Four - Handed dentistry and correct seating techniques. Other chapters of interest to the orthodontist include those on aspiration techniques, instrument handling and exchange, tray systems and colour coding.

Photographs are clear and detailed and those showing aspirating techniques, instrument exchange and impression taking would be useful aids in the training of orthodontic assistants.

Alex Starr

Food Facts
 By Briggs, D. & Walqvist, M.

Published by Penguin Books (Australia) 1984. Price \$9.95

The proliferation of books on the subject of nutrition in recent years has been a matter of concern to this reviewer. Many of them are based on theories that are not scientifically sound and yet this would only be apparent to people with background knowledge of nutrition. It is therefore a pleasure to review a book written by two Australian nutritionists from the Department of Human Nutrition, Deakin University.

The aim of Food Facts is to provide sufficient information so that persons will be able to judge for themselves the adequacy of their own food consumption patterns. In the first part of the book, dietary guidelines and recommended dietary intakes are discussed and terms such as energy and nutrient density are explained. Of particular interest are sections dealing with food law, food additives, the effects of processing and storing food, food poisoning and allergies, subjects which tend to be treated with a degree of suspicion and distrust by the general public.

The authors have approached the problem as to how to express nutrient content by providing bar graphs illustrating nutrient contents per 100g of food while at the same time indicating the size of an average serving. Visual and actual comparison of nutrient content are possible from the charts though it must be remembered that adjustment has to be made for serving size. For example, it is obvious from the

charts that parsley is a very nutritious food containing more minerals and vitamins per 100g than most other vegetables. However as the average serving size is shown to be 5g, the actual amount of nutrients contributed to the diet would be 1/20 of the amounts shown, unless a very large amount of parsley is eaten! It is imperative therefore that the section on "how to use the charts" be read before proceeding further.

There are 50 charts, each of which provides the content of a specific nutrient for up to 414 foods. Because they have not previously been included in Australian food composition tables, certain charts are of particular interest - dietary fibre, alcohol, vitamin B6, B12, D, E, iodine, fluorine and selenium to name a few. A useful thumbnail sketch of the nutrient precedes each chart.

The illustrations are most unusual and will not be to everyone's taste. It was disappointing to find a number of errors in the text which hopefully will be remedied at the next printing.

In summary, a novel approach which provides a ready reference to the nutrient content of foods.

Joan E. Steel

Principles and Practice of Orthodontics
By Mills, J.R.E.
Published by Churchill Livingstone 1982.
Price \$46.20

This textbook is based on notes issued to postgraduate students of the Institute of Dental Surgery at the Eastman Dental Hospital London. Professor Mills as head of the Postgraduate Orthodontic Department, used the notes to supplement his lectures. He claims that the notes were very popular, and he states that they have been rewritten and expanded to produce this first edition.

The contents follow the traditional pattern commencing with the growth and development of the face and jaws and of the dentition, and then proceeding to the aetiology of malocclusion with a discussion of the skeletal, soft tissue and local factors involved. Subsequent chapters deal with diagnosis, cephalometric radiology, and treatment planning. Treatment procedures are covered in separate chapters for each of the Angle classes of malocclusion, and in chapters considering the problems of overbite and the treatment of crossbite. The final chapters are devoted to clefts of the lip and palate and the surgical correction of malocclusion.

As a postgraduate student, I found this book well written informative and easy to read. Professor Mills is able to present a palatable blend of the historical, theoretical, experimental and clinical significance of the topic in question. He writes in a clear, pragmatic style and he reaches logical and practical conclusions.

This approach provides the student with a sound base upon which further studies can be pursued. With this in mind, a suggested reading list is provided at the end of each chapter. Unfortunately these lists tend to be short. Often classical orthodontic references are omitted whilst relatively insignificant references are included. The references come mainly from the European literature, and in several chapters the lists require updating.

The first chapter is an excellent account of growth and development. It covers relevant aspects of clinical significance and evaluates the prediction of growth. Although reference is made to the growth theories of Moss and the growth prediction technique of Ricketts, neither author is included in the suggested reading list.

Professor Mills considers the role of skeletal and soft tissue factors in the aetiology of malocclusion in an easy and effective manner. His approach is that of a clinician. Appropriate discussion is devoted to the commoner aetiological factors thus creating a realistic perspective of their relative frequency.

The chapter on diagnosis is basic and practical. It emphasises important aspects of the examination necessary for

orthodontic diagnosis and it is of particular benefit to the postgraduate student early in his training.

Professor Mills does not overplay the value of cephalometrics in his chapter on cephalometric radiology. He takes a simple, common sense approach to cephalometric analysis. Emphasis is placed on the Eastman analysis, whilst several well known analyses, including that of Ricketts, are not mentioned.

Treatment planning is based on Mills' research into the stability of the lower labial segment. He discusses the possibilities of changing the skeletal pattern and the question of extraction in a clear and logical style. Dogmatic it may be, but this chapter offers the postgraduate student sound and pertinent advice.

The chapters on treatment emphasise principles rather than practice. No attempt is made to give a detailed description of specific techniques. The cases used to illustrate the text are well recorded and are presented 'warts and all' many years out of retention. The cases are treated with a variety of appliances, several of which are used more by the British orthodontist than his Australian counterpart. Nevertheless, a great deal of practical information is provided.

The chapters devoted to cleft lip and palate and to the surgical correction of malocclusion are clear and concise, but perhaps too brief for the postgraduate student.

The book is a manageable size for comfortable armchair reading. There are several typographical errors in this first edition and some of the photographs lack clarity and contrast. However the book is well printed and very clearly laid out.

Although this text is far from comprehensive, it covers the basic principles and practice of orthodontics in a coherent, logical and refreshingly readable style.

David Fuller