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# 可摘局部义齿

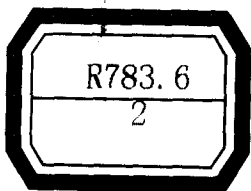
## Removable Partial Denture

▶ Nicholas J A Jepson [编著]

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PEOPLE'S MILITARY MEDICAL PRESS



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Removable Partial Denture

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## 内容提要

“口腔临床要点快速掌握系列”是国际著名的 Quintessence 出版集团近期出版的介绍口腔各科基本技术和最新医学理论的专业丛书。该丛书自 2002 年起陆续出版发行，我社第一时间引进，以便国内读者同步了解国际口腔技术发展的新情况。本书由国际知名口腔医学专家编写，摆脱了一般专著的照本宣科，一切从临床实践出发，通过大量实例，讲解了可摘局部义齿的最新理论和最基本、最重要、最实用的操作技术。本书采用了中英对照的编排方式，对提高读者的专业英语水平也大有裨益。本书适合于临床口腔科医师、技师和口腔医学生阅读。

责任编辑 杨 淮 韩 志

# 序

能够在可摘局部义齿修复学方面取得成功，不但使我们成为一名真正的实践操作者，而且还令人倍感满足。然而，可摘局部义齿修复学的知识和技巧却是复杂和充满挑战性的。正如这套深受欢迎的“口腔临床要点快速掌握系列”中所强调的，可摘局部义齿的成功取决于对许多必要的基本原则的坚持：正确的诊断，包括了解患者的需求和期待；对现存技术和材料性能的掌握和了解；合理的计划和对细节的关注。同样重要的还包括在开始修复缺失牙之前，控制和处理活跃的口腔病变，这也正是本书作者非常强调的一个原则。

关于实践操作，本书给从业医师提供了以证据为基础的行为准则，可以直接应用于每天的临床实践。尤其值得关注的是，本书针对局部义齿的设计提出了合理的、易于掌握的和令人耳目一新的操作方法。如果希望可摘局部义齿让患者满意和接受，还不用说使用良好，那么义齿的设计就是从业医师必须完成的一个重要步骤。如果怀疑你做的许多可摘局部义齿，尤其是那些下颌游离端鞍基义齿会被患者闲置得太久，或者更糟，被患者扔在了某个卫生间橱柜的背后或是家里的其他黑暗角落，那么，你就应该认真阅读此书。如果要为患者制作可摘局部义齿，那么就应该把它们做好，这就是本书的动机。

正如你所期待的，作为“口腔临床要点快速掌握系列”中的一册，本书配以高质量插图，进行了深入阐述，达到了很高的水准。很少有其他书籍能像本书一样，仅需一两个晚上就可以读完，但却提供了如此之多的关于可摘局部义齿的信息。你的可摘局部义齿患者将会非常高兴地知道，这本书已成为你职业继续教育的一部分。

主 编 Nairn Wilson

# 前 言

可摘局部义齿可以定义为：用于恢复位于尚存部分天然牙牙弓上的缺失牙和相关支持组织的活动修复体。它是修复患者缺失牙齿外观和功能的方法之一，并且有充分的证据来支持其长期应用的成功性。

就材料和技术而言，近年来可摘局部义齿的临床应用改进不大。改变明显的是这种应用的背景以及我们对应用效果的理解。重要的、持续的局部缺牙人口统计学改变，对修复缺失牙可选择方案的增多，以及不断增加的表明长期有效的证据，正在显著地影响着它们的应用。本书回顾了这些影响，并且用实例回顾了制作可摘局部义齿系统的、有效的方法。

## 阅读收获

期望读者在读完本书后能够：

- 认识到局部缺牙人口的统计学改变，重视可摘局部义齿的效果和应用后果。
- 理解适合应用可摘局部义齿的临床和患者相关因素，认识到可摘局部义齿设计要基于患者期待的美观和功能需要。
- 认识到并非所有缺失牙齿都需要修复，知道为患者制定功能导向治疗计划的概念。
- 理解可摘局部义齿设计的基本原则，并且把这些原则应用到可摘局部义齿相关组件的设计中去。
- 了解观测模型的步骤，以及如何将其应用到一个简单、实用的局部义齿设计过程中去。
- 知道可摘局部义齿的设计是从业医师的职责。
- 了解制作可摘局部义齿的材料和临床技巧。
- 理解过渡性局部义齿的适应证和类型。

**Nicholas J A Jepson**

## 致 谢

感谢Dean Barker先生、Bengt Öwall教授、David Smith先生和Richard Tones先生允许我在文中引用他们的部分图片。也要感谢我过去和现在的许多同事、患者和学生，他们帮助我形成了对局部缺牙情况总的处理原则，尤其是应用可摘局部义齿的观点。

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# 第 1 章 可摘局部义齿概述

## Partial Denture Provision

### 目 的

在工业化国家里，随着口内仍然存有部分天然牙齿的老年人比例增高，人们对于义齿修复的要求也会增加。本章旨在概述用以修复成人牙列缺损的可摘局部义齿。

### 要 点

阅读本章后，从业医师应当了解可摘局部义齿的疗效及预后。

### 牙列缺损人群

在许多发达国家中进行的全国口腔健康调查结果清楚地表明，无牙颌人群的比例将持续下降，更多的人群在步入老年以后仍将保留一些自体牙齿。1998年的英国全国健康调查结果显示，87%的成年人口内余留有天然牙，但这个比例受年龄因素的影响很大。在一些发达国家中各个年龄组人群的平均失牙数见图 1-1，资料来源自

### Aim

In industrialised countries, as the proportion of adults retaining some of their teeth into old age increases, so will the likely need for prosthetic intervention. This chapter aims to provide an overview of the need and demand for partial dentures to restore partially dentate adults.

### Outcome

After reading this chapter the practitioner should be aware of the effectiveness and consequences of partial denture use.

### The Partially Dentate Population

Evidence from various national dental health surveys in developed countries clearly indicates that the proportion of people with no teeth at all will continue to decline and that more people will retain some of their own teeth into old age. The results of the 1998 national dental health survey in the UK indicate that 87% of all adults had some natural teeth but that this

瑞典 WHO 合作中心 (2003 年)。其共同的趋势是在 45 岁以后人群中才出现明显的牙缺失, 并且失牙数随年龄的增加而增多。45 岁以上 (含 45 岁) 人群的可摘局部义齿使用率在不同的国家有所不同, 但都能达到 20%~30% 的水平。这种区别反映了在不同国家里公众及专业人员对可摘局部义齿使用的不同态度以及保健体系的不同。在将可摘局部义齿作为牙列缺损患者常规治疗方案的地区, 决定是否采用可摘局部义齿修复的重要因素是余留天然牙的数量。1998 年英国的口腔健康调查结果明确显示 21~24 颗牙是个分界点。有 21 颗或更多牙齿的患者不大可能使用可摘局部义齿 (图 1-2)。这也支持了“功能性牙列”这个重要概念: 认为患者不需要修复失牙也可以获得足够的功能和舒适度。

人们口内余留牙齿的数目也有增加。1998 年在英国, 超过 72% 的成人有 21 颗或者更多牙齿。虽然这一数据随着年龄增加而降低, 如在 75 岁以上

proportion was strongly influenced by age. The mean number of missing teeth by age group for a number of developed countries is shown in Fig 1-1 using data from the WHO Collaborating Centre, Sweden (2003). Common trends are that significant tooth loss only becomes apparent after 45 years of age and that the number of missing teeth increases with age. The percentage of people  $\geq 45$  years of age provided with partial dentures differs between countries, a variation that reflects both differing public and professional attitudes to partial denture use and healthcare systems, but can reach levels of 20–30%. Where provision of partial dentures is a commonly used treatment option for the partially dentate, the principal deciding factor as to whether or not a partial denture is used appears to be the number of remaining natural teeth. Results of the 1998 UK Dental Health Survey clearly indicate that there is a cut-off point at 21–24 teeth and people with 21 or more teeth are unlikely to have removable partial dentures (Fig 1-2). This supports the important concept of a “functional dentition” which allows the patient sufficient function and comfort without the need for tooth replacements.

The number of teeth that people retain has also increased. In the UK in 1998, over 72% of adults had 21 or more teeth although this figure reduced with age such that only

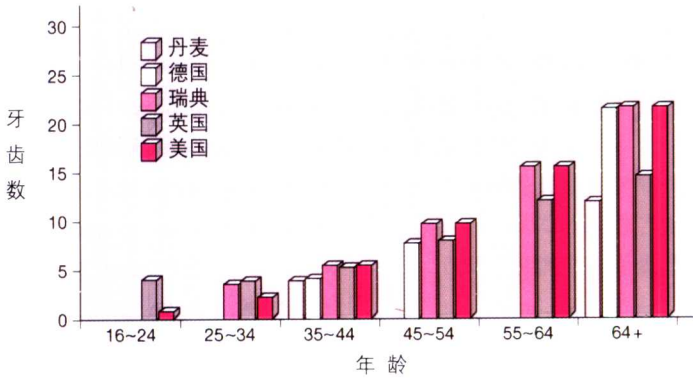


图 1-1 不同年龄组的平均失牙数目 (数据来源于 2003 年瑞典 Malmö WHO 合作中心)  
 Fig 1-1 The mean number of missing teeth by age group (data from WHO Collaborating Centre, Malmö, Sweden 2003)

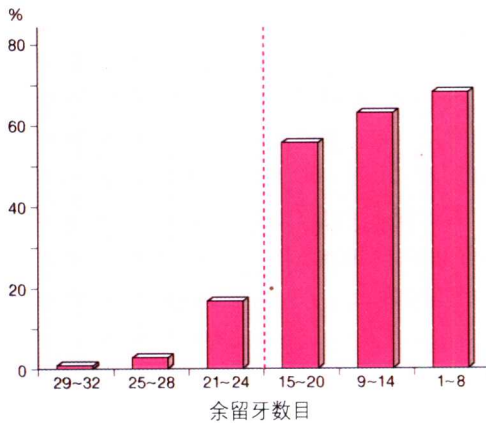


图 1-2 牙列缺损患者佩戴可摘局部义齿情况与余留牙数目的比例关系 (成人牙科健康调查结果, 1998 年的英国口腔健康状况)

Fig 1-2 The proportion of partially dentate adults with removable partial dentures by number of natural teeth (Adult Dental Health Survey, Oral Health in the United Kingdom 1998)

(含75岁)的人群中其比例只有10%。预计到2018年,英国16~74岁人群中,有90%将保留21颗或更多天然牙齿,虽然这一比例仍将随着年龄增长而降低。这些预计需要放在工业化国家里65岁以上(含65岁)人口比例不断增长、人口寿命持续上升的背景下去考虑。例如在英国,到2021年65岁以上成年人的数量可望增加到270万。

余留牙数目的增加反映了人们在维护牙齿健康方面更积极的态度,也反映了牙科保健方法的改进。成年人更加希望保留他们的天然牙,也更愿意接受口腔医师推荐的保留牙齿的治疗方案。这也很好地证明了牙科保健水平的提高增加了终生保留至少几颗天然牙的可能性。越来越多的成年人发觉无法接受使用全口义齿,但有趣的是,这种观点看起来似乎并不影响可摘局部义齿的使用。那么未来可能越来越多的牙列缺损的老年患者要求使用可摘局部义齿来修复缺牙了。

基于全国调查数据的预计已经被用于评估未来牙列缺损患者的治疗需求。这些评估指出固定修复和活动修复的需求都有所提高。在美国,预计到

10% of people aged  $\geq 75$  years had 21 or more teeth. Projections for 2018 suggest that 90% of 16-74 year olds in the UK will have a natural dentition of 21 or more teeth though this proportion will again reduce with age. Such projections need to be seen in the context of increasing life span in industrialised countries with an increasing percentage of populations  $\geq 65$  years old. In the UK, for example, the number of adults over the age of 65 years is expected to rise by 2.7 million by 2021.

Increased tooth retention reflects the development of more positive attitudes to dental health and improved access to dental care. Adults increasingly wish to retain their natural teeth and are prepared to accept treatment recommended by their dentists to save their teeth. There is good evidence that dental attendance improves the possibility of retaining at least some teeth over the course of a lifetime. Increasingly, adults find the prospect of complete dentures unacceptable though, interestingly, such attitudes do not seem to apply to the use of partial dentures. The future then is one of increasing numbers of older partially dentate adults who may require partial dentures to replace missing teeth.

Projections based on data from national surveys have been used to estimate the future treatment need for the partially dentate. These estimates point to an increased need

2020年, 固定修复和活动修复的需求总量将达到现有水平的115%。可摘局部义齿是修复缺失牙的最简单, 最便宜, 也是目前最常用的方法。在英国, 约30%的中年人和老年人使用可摘局部义齿修复。然而, 固定义齿正被越来越多的老年患者所接受, 越来越多的人也认为种植支持式义齿可能会为有部分缺牙的患者提供一种更有效、更持久的修复方案。但是, 社会经济因素显示, 可摘局部义齿仍将在可预计的未来更频繁地被使用。结合明显的人口趋势分析, 未来在发达国家里, 人们对可摘局部义齿的需求不会下降, 而是可能维持相对稳定的状态。

### 可摘局部义齿的作用

在绝大部分病例中, 可摘局部义齿通过修复典型的因前牙缺失造成的可见间隙来改善外观; 或者通过修复缺失的后牙(通常是磨牙)来改善功能。此外, 可摘局部义齿还被主张用于保持殆稳定。本节将探讨可摘局部义齿在这些情况下的使用效果。

for both fixed and removable prosthesis. In the USA the projected total need for fixed and removable prosthesis is put at 115% of current provision by the year 2020. Partial dentures are the simplest, cheapest and by far the most common method of replacing missing teeth. In the UK approximately 30% of all middle aged and elderly adults have been provided with partial dentures. There is, however, an increasing acceptance of the use of fixed prosthesis by elderly patients and a growing recognition that implant-supported prosthesis offer a viable and, perhaps, more effective long-term treatment alternative for the partially dentate. Socio-economic factors would suggest, however, that the more frequent use of partial dentures will remain the situation for the foreseeable future. This together with the evident population trends would suggest that the need for partial dentures in developed countries is unlikely to decrease in the future and will probably remain relatively stable.

### The Effectiveness of Partial Denture Provision

For the very large majority of cases, partial dentures are provided to improve appearance by restoring visible spaces resulting from the loss of typically anterior teeth and to improve function by restoring missing posterior, usually molar, teeth. In

## 外观

前牙缺失修复后获得的外观改善毋庸置疑(图1-3)。也许这就是患者要求可摘局部义齿修复而且继续戴用它们的原因,但这并非必然。有个很好的例子可以证明这一点,对于什么是令人满意的外观,口腔医师和患者的看法大相径庭(图1-4)。当然关键在于患者的意见。这与他们认为的社会环境可接受的形象,以及被社会学家称之为“过得去”的毫不拘束和可接受的概念有很大关系。患者的年龄似乎确实影响到外观对他们的重要性。年轻患者,对明显的牙齿缺失无法接受,这会有力地促使他们去寻求治疗。而许多年龄较大的患者会觉得存在可见的缺陷,如第一前磨牙缺失(图1-5),还是可以接受的。随着年龄的增长,人们对功能的关注超过了对外观的关注。

addition, the use of partial dentures is often advocated to maintain occlusal stability. This section will review the effectiveness of partial denture use in these circumstances.

## *Appearance*

The improved appearance gained by the replacement of missing anterior teeth really needs no amplification (Fig 1-3). It is probably the main reason patients request partial dentures and, perhaps, continue to wear them but this is not inevitably the case. There is good evidence to suggest that the dentist's and patient's view of what is or is not a satisfactory appearance can differ markedly (Fig 1-4). The key factor is, of course, the patient's opinion and this is strongly linked to what they perceive is an acceptable appearance in their social environment, a concept of social ease and acceptability well described by social scientists as "passing". The age of the patient does seem to influence the importance attached to appearance. For younger patients, the loss of visible teeth is likely to be unacceptable and a powerful driving force to seek treatment, yet many elderly patients can find the presence of visible spaces resulting, for example, from the loss of first premolar teeth quite acceptable (Fig 1-5). As age increases there appears to be a greater focus on the need for acceptable

图 1-3 因前牙缺失造成的可见间隙似乎是患者寻求修复治疗的主要动机

Fig 1-3 The presence of visible spaces because of missing anterior teeth is likely to be the main factor motivating this patient to seek treatment to replace them



图 1-4 有些让人吃惊的是，患者坚持认为缺失的 $|2$ 不需要修复  
Fig 1-4 Somewhat surprisingly, the patient was insistent that the missing UL2 should not be replaced



图 1-5 很多年龄较大的患者觉得可见缺隙的存在是可以接受的

Fig 1-5 Many elderly patients find the presence of visible spaces quite acceptable



### 咀嚼功能

天然牙数量减少可能对咀嚼功能产生影响的经典描述见图1-6。牙齿缺失,尤其是后牙缺失,会引起咀嚼和咬食困难——这就是咀嚼功能受限。咀嚼功能受限引起对食物的选择发生改变,摄取食物的不全面可能导致营养不良。对缺失牙进行修复能够恢复咀嚼功能,使患者在选择食物时有更大的自由,从而可能增加对食物的摄取。

多年以来,存在一个基本的假设:后牙的逐渐脱落会在一定程度上降低咀嚼效率,从而导致消化问题。事实上,也有证据表明,由于牙齿的缺失,咀嚼效能的客观测量结果降低了。但是也有许多有大量后牙缺失的患者很少或者根本没有抱怨他们咀嚼食物的

function rather than appearance.

### Masticatory function

The classic description of the possible effects of a reducing number of natural teeth on masticatory function is shown in Fig 1-6. Tooth loss, in particular that of posterior teeth, results in difficulty chewing and biting food — that is a limitation of masticatory function. This in turn leads to changes in food choices, an impaired dietary intake that may be associated with nutritional deficiency. Replacement of missing teeth restores masticatory function and allows the patient more dietary freedom and the possibility to improve dietary intake.

It was for many years a basic assumption that the progressive loss of posterior teeth would reduce chewing efficiency to the extent that problems of digestion would ensue. Indeed, there is evidence to suggest that as teeth are lost so objective measures of masticatory performance deteriorate.

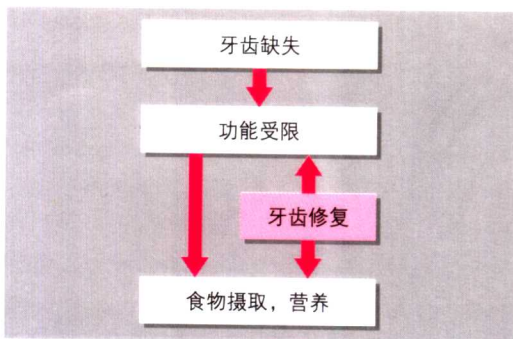


图 1-6 天然牙数量减少可能对咀嚼功能产生的影响

Fig 1-6 The possible effects of a reducing number of natural teeth on masticatory function



能力。他们没有察觉到咀嚼功能受限，共同的研究结果表明，咀嚼功能的主观评价与客观评价之间没有什么相关性。最近的研究表明，患者在缺失了磨牙，甚至第二前磨牙的情况下仍能充分地咀嚼。人们推测患者是通过咽下较大的食团，而不是靠延长咀嚼时间来补偿功能受限。决定患者能否感觉到咀嚼受限的因素，看来是能产生咬合的上下后牙的对数。有证据表明，除非患者存在少于3对有咬合接触的后牙，否则在已经缩短的牙弓上修复缺失的磨牙是不会带来社会效益的。假设没有前牙缺失，即相当于还留有21颗或更多天然牙以及3~5对有咬合接触的后牙的“功能阈值”——也就是本章前面提到的“功能性牙列”。

虽然因牙齿缺失导致的咀嚼功能受限与摄入食谱变窄之间的关系已经确立，但这种关系在牙列缺损患者中远没有在无牙颌患者中显得明确。有迹象表明牙齿的数量和分布与食物摄入关系密切。例如，随着可产生咬合的

However, many patients with large numbers of missing posterior teeth have little or no complaint about their ability to chew food. They have no perceived functional limitation and, indeed, the poor correlation between objective and subjective assessments of masticatory function is a common research finding. Recent research suggests that patients can masticate adequately without molars and even second premolars, the assumption being that they compensate for a poor occlusion by swallowing larger particles of food rather than chewing for longer. The factor determining whether a patient perceives a limitation of masticatory function appears to be the number of pairs of occluding posterior teeth. Evidence suggests that unless the patient has fewer than three occluding pairs of posterior teeth there is no socio-functional benefit to be gained from replacing missing molar teeth in shortened dental arches. Assuming no loss of anterior teeth, this equates to a “functional threshold” of 21 or more teeth with three to five pairs of occluding posterior teeth — the “functional dentition” referred to earlier in the chapter.

The relationship between limitation of masticatory function resulting from tooth loss and impaired dietary intake has been established but much less clearly for the partially dentate than it has been for the edentulous. The indications are that the