



Practical Removable Prosthodontics  
in  
Ageing Patients

Finlay Sutton



# FINLAY SUTTON

REMOVABLE PROSTHODONTICS EDUCATION

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## Complete denture construction manual by Finlay Sutton (Prosthodontist) with Rowan Garstang (Dental Technician)



This complete denture construction protocol is based on the guides published by the British Society of Prosthodontics in 1996. These are as relevant today as when they were first published. The guides can be obtained at: <https://www.bsprosthodontics.org/184.aspx?PID=1&PID2=1&PID3=1&PID4=1&PID5=1&PID6=1&PID7=1&PID8=1&PID9=1&PID10=1&PID11=1&PID12=1&PID13=1&PID14=1&PID15=1&PID16=1&PID17=1&PID18=1&PID19=1&PID20=1&PID21=1&PID22=1&PID23=1&PID24=1&PID25=1&PID26=1&PID27=1&PID28=1&PID29=1&PID30=1&PID31=1&PID32=1&PID33=1&PID34=1&PID35=1&PID36=1&PID37=1&PID38=1&PID39=1&PID40=1&PID41=1&PID42=1&PID43=1&PID44=1&PID45=1&PID46=1&PID47=1&PID48=1&PID49=1&PID50=1&PID51=1&PID52=1&PID53=1&PID54=1&PID55=1&PID56=1&PID57=1&PID58=1&PID59=1&PID60=1&PID61=1&PID62=1&PID63=1&PID64=1&PID65=1&PID66=1&PID67=1&PID68=1&PID69=1&PID70=1&PID71=1&PID72=1&PID73=1&PID74=1&PID75=1&PID76=1&PID77=1&PID78=1&PID79=1&PID80=1&PID81=1&PID82=1&PID83=1&PID84=1&PID85=1&PID86=1&PID87=1&PID88=1&PID89=1&PID90=1&PID91=1&PID92=1&PID93=1&PID94=1&PID95=1&PID96=1&PID97=1&PID98=1&PID99=1&PID100=1> It is relevant to refer to these Guides to Standards in Prosthetic Dentistry as well as these instructions. We attempt to give the patient "prosthodontic privacy". A phrase created by Dr John Bedford, whereby only the patient and treating prosthodontic team know that the patient has prosthetic teeth.

### Removable prosthodontics is not easy

Removable prosthodontics is not easy and takes effort and graft to get good at it. Like anything in life that's worth doing – it is hard, but it's definitely worth the effort.

### The most important factor in delivering successful dentures

Technical factors are extremely important but are not the most important factor in delivering successful dentures. The patient's education and understanding of their role is the single most important factor in the success of their dentures.

Finlay Sutton and Rowan Garstang 2018

BDJ Aesthetic Dentistry Series | **REMOVABLE CPD PAPERS** | PRACTICE

## Aesthetic possibilities in removable prosthodontics. Part 1: the aesthetic spectrum from perfect to personal

J. N. Bedford<sup>1</sup> and A. F. Sutton<sup>2\*</sup>

In brief		
The importance of the denture actors: anatomical and practical	The importance of good facial external anatomy: between the patient and dental team, with the patient as the focus	Why should we make dentures look like natural teeth?

Patients requiring dentures are getting older and as a result can be difficult to treat owing to various co-morbidities. This series of papers presents an overview of the processes involved in making removable dentures which the patient considers to be functionally and aesthetically successful. We hope not only to provide technical suggestions but also to address the issue of the clinician, technicians and dental nurse's relationships with the dentally declined patient. It is increasingly clear from defence organisation reports that this has a decisive effect on the success of this fundamentally difficult enterprise. The only branch of dentistry in which you are trying to attach something to nothing (Hubert Aichele). It seems best to conduct the planning and the treatment itself as a co-production – the patient assuming responsibility for choosing between the treatment options offered and playing the leading role in making aesthetic decisions. Distinctions are drawn between the skilled whilst-than-while, 'holistic-in-particular', attention-seeking denture at one extreme, and the highly personalised, discreet and naturalistic denture at the other. Reproducing nature in this way is time consuming and therefore expensive, but many dentures suffer from it as good value. Methods for creating the latter, which through its very normality switches off the social observer's attention, are explained in detail in papers two and three of this series. These papers are designed to help clinicians and technicians involved in providing removable prosthodontics improve the appearance of their dentures and increase their patients' aesthetic satisfaction. They are not scientific articles in the Piggeman sense of advancing theories which are capable of being falsified. Instead, they are an amalgamation of 72 years of combined experience with removable dental prostheses. We have found this branch of dentistry immensely interesting and fulfilling. It is a pity we had the satisfaction of seeing our patients' lives changed for the better.

### Introduction

*'Of course, dentures are essentially social appliances.' Per-Old Glantz.*

**The predicament of the denture patient**  
When approaching the subject of dental prostheses for patients for whom fixed restorations are not a practical or even a best long option, the authors believe that it is important to consider the life circumstances of people who have lost many or all their natural teeth. This is not only because of conventional concerns advocating holistic dentistry – 'treat the whole patient, not just the mouth' – but also because the day-to-day experiences of people who wear complete dentures (or nearly complete partial dentures) are radically different from those of

our dentate patients. Although denture patients may be concerned about the appearance of their natural teeth, some being that their teeth are too irregular, too dark, too worn down, have unwanted discolours, etc., at least they still have their own teeth. In contrast, those obliged to wear dentures have often been subjected to more anxiety-producing, life-contrasting and potentially humiliating experiences than dentate patients.

People, depressed of all or most of their natural teeth, because of dentistry or the lack of it, often feel guilty. They feel that they have let one of God's virtues and it was 'their own fault' (which is often not the case). To add to this symbolic loss and feeling of failure, denture wearers may live in constant fear of a variety of practical scenarios: that their denture could be seen to move in their mouth while speaking or eating, or worse still get knocked out of it by a collision in a public place; that it may fracture; that it may get soaked while they are in hospital (especially when asked to remove it for an operation requiring a general anaesthetic), or lost while on holiday, swimming, etc.

They often live with constant anxiety, which is degraded by it, or they think it looks artificial. Many denture wearers also suffer chronic discomfort, loss of biting and chewing power, leading to nutritional concerns of food and the need to turn down invitation to restaurants and especially to meals at other people's homes, where they cannot choose 'safe' food. These denture wearers can be called denture sufferers to distinguish them from the many who manage to cope. Many complete denture sufferers find individual with their sexual partners, their mouth becoming effectively a 'no go area'. Such common problems may be additional to any aesthetic shortcomings which they feel their artificial teeth and gums display.

The reason for not mentioning these other problems here is that dentists who do not regularly treat partly or totally edentulous people may be unaware of the short depths to which denture sufferers can sink on, not recognising the jubilee heights to which they can be raised again by being provided with teeth which are comfortable, stable, permit satisfactory speech and mastication,

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## Aesthetic possibilities in removable prosthodontics. Part 2: start with the face not the teeth when rehearsing lip support and tooth positions

J. N. Bedford<sup>1</sup> and A. F. Sutton<sup>2\*</sup>

In brief		
Describe impression taking in maxillary dentures, stability and soft tissue support by managing large frenulae	Describe shaping the wax occlusal table into its preshape appropriate to support and reduce tooth pressure	Describe the steps and sequence of denture, giving optimum aesthetics

Even dentures exhibiting superb aesthetics are of no use if they visibly move during speech and social intercourse. In this, the second paper of three on removable denture aesthetics, we describe impression making and shaping the wax occlusal record rim. Not only are the impressions important for producing dentures with maximum retention, stability and support, but their extensions and the thickness of their borders have a decisive influence on lip support and profile. This article shows how the contours of the definitive impressions and the wax rims are developed so as to prescribe the overall form of the replacement gums and teeth. Properly trimmed rims are in essence an early three-dimensional rehearsal, an opportunity for developing the patient's preferred lip support and natural positioning of the denture teeth at subsequent stages. They can also give an early indication of what speech will be like with the new dentures. Without this 3D clinical information, laboratory technicians have to guess where to put the teeth and have little option but to fall back on the stereotypes of their textbook training.

### Denture construction

*'Of course, dentures are essentially social appliances.' Per-Old Glantz.*

It is outside the scope of these articles to provide a step-by-step guide to state-of-the-art complete denture construction. However, producing complete dentures which look wonderful is pointless if they are unworkable owing to poor fit and function. To have a chance of working well in the physical sense, dentures must have sufficient stability for the patient not to be constantly reminded of their presence. And for that dentures must rely on their fitting surfaces, polished surfaces and occlusal surfaces being optimally shaped and positioned for each individual mouth.

Traditionally the *altered wax impression* process is thought of only as that which defines the denture bearing area, that which supports and retains 'the fit surface' of the denture. However, it is also possible to make simultaneous or consecutive impressions of the cheeks, lips and tongue as they move naturally when in contact with the superstructures of the denture (that is, the gums and the buccal and lingual surfaces of the teeth). We call the *triple wax version* of this 'the French impression', because we learnt it from from a gifted French prosthodontist, Hubert Aichele. It is also known as a *photographic impression*.

### Denture retention and aesthetics

The first and most obvious connection between retention and aesthetics is that any movement of a denture which is visible to an onlooker

amounts to an aesthetic disaster as well as a potentially humiliating social experience. This is what the wearers of dentures with stable and aesthetically sound dentures usually fear most.

Denture retention has a second relevance to appearance: when the dentures are well retained, the visible anterior teeth may be placed in any position which is attractive and appropriate (personal) for the individual. Deep overbites and large overjets present no problem. This opens up the aesthetic possibilities for the prosthodontic team and allows the denture patient to have virtually any dental appearance he or she desires. And this is true from the dental team, time and cost permitting, from the constraints of denture steps (on the edge) denture set-ups and the classic 'side teeth' appearance.

Without access to the stabilising effects of conventional dentures, natural or implanted, the retention of a conventional complete denture (in the presence of adequate saliva) will depend mainly upon the accuracy of its fit in the soft tissues. And this in turn will depend on the quality of the primary and secondary impressions.

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BDJ Aesthetic Dentistry Series | **REMOVABLE CPD PAPERS** | PRACTICE

## Aesthetic possibilities in removable prosthodontics. Part 3: Photometric tooth selection, tooth setting, try-in, fitting, reviewing and trouble-shooting

J. N. Bedford<sup>1</sup> and A. F. Sutton<sup>2\*</sup>

Key points			
Perfect reproduction – making dentures look like natural teeth and gums	Being true with tooth position, colour, shape and shape of natural teeth using photometric selection and assessment	Perfect and denture making in the dental office – the complete denture 'try-in'	Stability of the denture and review stages of complete denture prostheses

This final article in a series of three on producing complete dentures which the patient considers attractive, describes selecting the denture teeth, setting the front teeth at the chairside, the try-in visit, processing, fitting and reviewing the dentures. The role of the patient as captain of the ship, the dental nurse as the patient's support and liaison officer, and the clinician as the first technical officer is outlined. The use of immediate replay video technology in allowing a patient to see what the trial denture really looks like is described. It is vital that the patient is completely happy with its appearance in every detail before denture is finished. Dealing with post-fitting aesthetic problems is considered.

### The materials of denture teeth

*'Of course, dentures are essentially social appliances.' Per-Old Glantz.*

**Porcelain teeth vs teeth of various resins**  
Though some practitioners prefer to use porcelain teeth, the majority of dentures are made with resin teeth. The principal reasons for this are: 1) that resin teeth are standard in most dental schools and colleges, and 2) that porcelain teeth have to be mechanically retained in denture base materials, and their retention is dependent on the quality of the denture base material. They are usually more expensive, too, since various stages of their manufacturing have not yet been automated and have to be done by hand. Any post-purchase surface characterisation, such as staining, crack lines, etc. requires the use of a porcelain furnace. Resin dentures have immediate access to such firing kilns, which makes the addition and removal of characterisation more difficult for the patient to control.

Initially, the *poly-methyl methacrylate (PMMA)* resin used to make denture teeth were relatively soft and subject to rapid attrition and abrasion. However, improvements in chemistry and manufacturing have been continuous and today's resin teeth are harder and more stain resistant than before. Composite resins are used in some makes to improve wear resistance especially of posterior teeth, though these materials are more prone to staining and being chipped. Also, because of their filler particles, composite resins are also less translucent, which has a negative influence when pronounced incisal edge translucency is required in the outer enamel layer. Composite is therefore more useful in posterior teeth.

**Choosing denture teeth for complete dentures**  
*Anterior teeth*  
When a dentist extracts someone's front teeth and shows them in the hazardous waste bin, a small procedure, precious evidence is being thoughtlessly disposed of. These teeth would have become a great help in the selection of denture teeth for any future dentures. They are not useful for shade selection because teeth undergo marked colour changes as they dry out, but in every other respect – size, shape and surface detail – they cannot be improved on as records of the natural dentition; they were the natural dentition. We therefore advocate that dental practitioners wash extracted teeth, pack them discreetly in some suitable small container and offer them to the patient to keep for reference as new dentures are made in the years to come. No doubt some patients will find the idea distasteful and decline the offer, but many patients will see the good sense of not simply throwing away these valuable personal

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complete denture construction protocol is based on the guides published by the British Society of Prosthodontics in 1996. These are as relevant today as when they were first published. The guides can be found at: <https://www.bsppd.org.uk/resources/1996-guidelines.aspx>. It is relevant to refer to these Guides in Prosthetic Dentistry as well as these instructions. We attempt to give the patient 'odontic privacy'. A phrase created by Dr John Besford, whereby only the patient and treating dentist know that the patient has prosthetic teeth.

**Removable prosthodontics is not easy**  
Removable prosthodontics is not easy and takes effort and graft to get good at it. Like anything in life worth doing – it is hard, but it's definitely worth the effort.

**The most important factor in delivering successful dentures**  
Technical factors are extremely important but are not the most important factor in delivering successful dentures. The dentist's education and understanding of their role is the single most important factor in the success of dentures.

Finlay Sutton and Rowan Gerstang 2018

the planning and the treatment itself as a co-production – the patient assuming responsibility for choosing between the treatment options offered and playing the leading role in making aesthetic decisions. Distinctions are drawn between the idealised 'whiter than white', 'nobody-is-particular', attention-seeking denture at one extreme, and the highly personalised, discreet and naturalistic denture at the other. Reproducing nature in this way is time consuming and therefore expensive, but many 'denture sufferers' see it as good value. Methods for creating the latter, which through its very normality switches off the social observer's attention, are explained in detail in papers two and three of this series. These papers are designed to help clinicians and technicians involved in providing removable prosthodontics improve the appearance of their dentures and increase their patients' aesthetic satisfaction. They are not scientific articles in the Popperian sense of advancing theories which are capable of being falsified. Instead, they are an amalgamation of 72 years of combined experience in making removable dental prostheses. We have found this branch of dentistry immensely interesting and have found that many dentists had the satisfaction of seeing our patients' lives changed for the better.

**Introduction**  
Of course, dentures are essentially social appliances. 'For Old Gents!'

**The predicament of the denture patient**  
When approaching the subject of dental prostheses for patients for whom fixed restorations are not a practical or even a best first option, the authors believe that it is important to consider the life circumstances of people who have lost many or all of their natural teeth. This is not only because of conventional notions about ageing and dentistry – 'that's the whole patient, not just the mouth' – but also because the day-to-day experience of people who wear complete dentures (or nearly complete partial dentures) are radically different from those of

our dentate patients. Although denture patients may be concerned about the appearance of their natural teeth, some believe that their teeth are too irregular, too dark, too worn down, have unwanted diastemas, etc., or that they still have their own teeth. In contrast, those obliged to wear dentures have often been subjected to more anxiety-producing, life-threatening and potentially humiliating experiences than dentate patients.

People deprived of all or most of their natural teeth, because of dentistry or the lack of it, often feel guilty. 'They told me they have lost one of their bottles and it was their own fault' (which is often not the case). To add to this symbolic loss and feeling of failure, denture wearers may live in constant fear of a variety of practical scenarios that their denture could be seen to move in their mouth while speaking or eating, or worse still get knocked out of it by a collision in a public place, that it may fracture, that it may get melted while they are in hospital (especially when asked to remove it for an operation requiring a general anaesthetic), or lost while on holiday swimming, etc.

They often fear that someone in their speech is degraded by it, or they think it looks artificial. Many denture wearers also suffer chronic discomfort, loss of biting and chewing power, leading to nutritional choices of food and the need to turn down invitations to restaurants and especially to meals at other people's homes, where they cannot choose 'safe food'. These denture wearers can be called 'denture sufferers' to distinguish them from the many who manage to cope. Many complete denture wearers find inhibited with their sexual partners, their mouths becoming effectively a 'no go area'. Such common problems may be additional to any aesthetic shortcomings which they feel their artificial teeth and gums display.

The reason for our mentioning these other problems here is that dentists who do not regularly treat partly or totally edentulous people may be unaware of the depth to which denture sufferers can sink in, and accordingly the subtlest changes to which they can be raised again by being provided with teeth which are comfortable, stable, permit satisfactory speech and mastication,

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record rim. Not only are the impressions important for producing dentures with maximum retention, stability and support, but their extensions and the thickness of their borders have a decisive influence on lip support and profile. This article shows how the contours of the definitive impressions and the wax rims are developed so as to prescribe the overall form of the replacement gums and teeth. Properly trimmed rims are in essence an early three-dimensional rehearsal, an opportunity for developing the patient's preferred lip support and natural positioning of the denture teeth at subsequent stages. They can also give an early indication of what speech will be like with the new dentures. Without the 3D clinical information, laboratory technicians have to guess where to put the teeth and have little option but to fall back on the stereotypes of their textbook training.

**Denture production**  
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**Impression making**  
It is worth highlighting here our conclusion, from experience, that the quality of the primary impression is crucial in determining the quality of all subsequent stages. Linda Blakely puts it well: 'Developing a good primary impression may be seen as an investment'.

Traditionally the edentulous impression process is thought of only as that which defines the denture bearing area, that which supports and retains 'the fit surface' of the denture. However, it is also possible to make unobtrusive or cosmetic impressions of the cheeks, lips and tongue as they move naturally when in contact with the superstructure of the denture (that is, the gums and the buccal and lingual surfaces of the teeth). We call this 'trayless' version of the French impression, because we learnt it from a gifted French prosthodontist, Hubert Ailha. It is also known as a photographic impression.

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**Denture retention**  
Without access to the stabilising effects of overdentures, natural or implanted, the retention of a conventional complete denture (in the presence of adequate saliva) will depend mainly upon the accuracy of its fit to the soft tissues. And this in turn will depend on the quality of the primary and secondary impressions.

assessors to an aesthetic disaster as well as a potentially humiliating social experience. This is what the wearers of dentures with careful retention usually fear most.

Denture retention has a second relevance to appearance: when the dentures are well retained, the visible anterior teeth may be placed in any position which is attractive and appropriate (personal) for the individual. They overbite and have overjet present no problem. This opens up the aesthetic possibilities for the patient/clinician team and allows the denture patient to have virtually any dental appearance he or she desires. And this in turn flows from the dental team, time and cost permitting, from the constraints of stereotypes 'on the edge' denture set-ups and the classic 'false teeth' appearance.

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the clinician as the first technical officer is outlined. The use of immediate replay video technology in allowing a patient to see what the trial denture really looks like is described. It is vital that the patient is completely happy with its appearance in every detail before denture is finished. Dealing with post-fitting aesthetic problems is considered.

**The materials of denture teeth**  
Of course, dentures are essentially social appliances. 'For Old Gents!'

**Porcelain teeth vs teeth of various resins**  
Through some practitioners prefer to use porcelain teeth, the majority of dentures are made with resin teeth. The principal reasons for this are: 1) that resin teeth are standard in most dental schools and colleges; and 2) that porcelain teeth have to be mechanically retained in denture base materials, and their retention features, give an anterior and buccal in posterior, must be maintained to allow retention. This latter requirement prevents substantial grinding of the neck and back of the teeth where space is limited by a large ridge or replace/overdenture attachments, or too little inter-ridge space. In those circumstances resin teeth are necessary because

they bond chemically to the acrylic denture base material. Apart from that, porcelain disadvantages as a denture tooth material – its brittleness when teeth occlude, their relative brittleness if a denture is dropped onto a hard surface and their abrasiveness when unglazed porcelain (ground to wear) opposes natural teeth – are thought to most cases to outweigh the advantages of extreme stain resistance and significantly greater wear resistance which porcelain teeth have. They are usually more expensive, too, since various stages of their manufacturing have not yet been automated and have to be done by hand. Any post-purchase surface characteristics, such as staining, crack lines, etc. require the use of a porcelain lacquer. Few clinics have immediate access to such firing kilns, which makes the addition and removal of characterisations more difficult for the patient to control.

Initially, the poly-methyl methacrylate (PMMA) resins used to make denture teeth were relatively soft and subject to rapid attrition and abrasion. However, improvements in chemistry and manufacturing have been continuous and today's resin teeth are harder and more stain resistant than before. Composite resins are used in some makes to improve wear resistance especially of posterior teeth, though these materials are more prone

to staining and being chipped. Also, because of their filler particles, composite resins are also less translucent, which has a negative influence when processed (facial edge translucency is required in the outer enamel layer). Composites are therefore more useful in posterior teeth.

**Choosing denture teeth for complete dentures**  
**Anterior teeth**  
When a dentist extracts someone's front teeth and shows them in the hazardous waste bin, a small porcelain, precious porcelain or being thoroughly disposed of. These teeth would have become a great help in the selection of denture teeth for any future dentures. They are not useful for shade selection because teeth undergo marked colour changes as they dry out, but in every other respect – size, shape and surface detail – they cannot be improved on as models of the natural dentition. We therefore advocate that dental practitioners with extracted teeth, pack them discreetly in some suitable small container and offer them to the patient to keep for reference as new dentures are made in the years to come. We decide some patients will find the idea distasteful and decline the offer, but many patients will be forgiven some of not simply throwing away these valuable personal

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1

# RESOURCES

Full access PDF to my published scientific papers which explain my philosophy and clinical techniques:

TC White Symposium 2020 - Practical Removable Prosthodontics in Ageing Patients Finlay Sutton



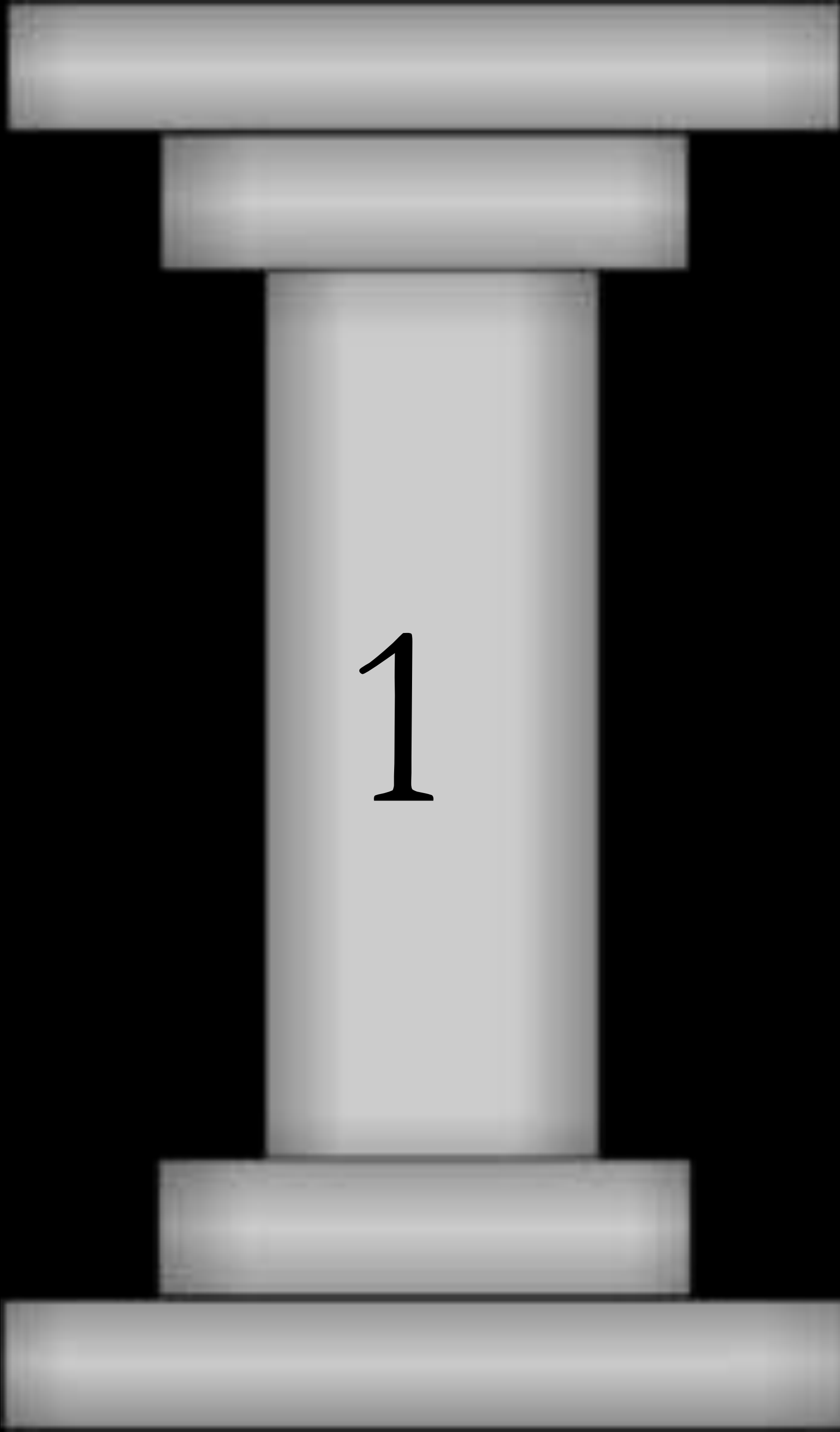
References for TC White Symposium 2020 Practical Removable Prosthodontics in Ageing Patients Finlay Sutton



References to go with my full membership presentation for the British Academy of Aesthetic Dentistry (BAAD) – Thursday 15th October 2020

PDF of Finlay's full membership presentation for the British Academy of Aesthetic Dentistry (BAAD)

Aesthetic possibilities in removable prosthodontics. Part 1: the aesthetic spectrum from perfect to personal John Besford and Finlay Sutton



1

Technician





Rowan Garstang



Sam Hesketh



Removable prosthodontics  
is difficult





2

Mentor





Dr John Besford

My mentor

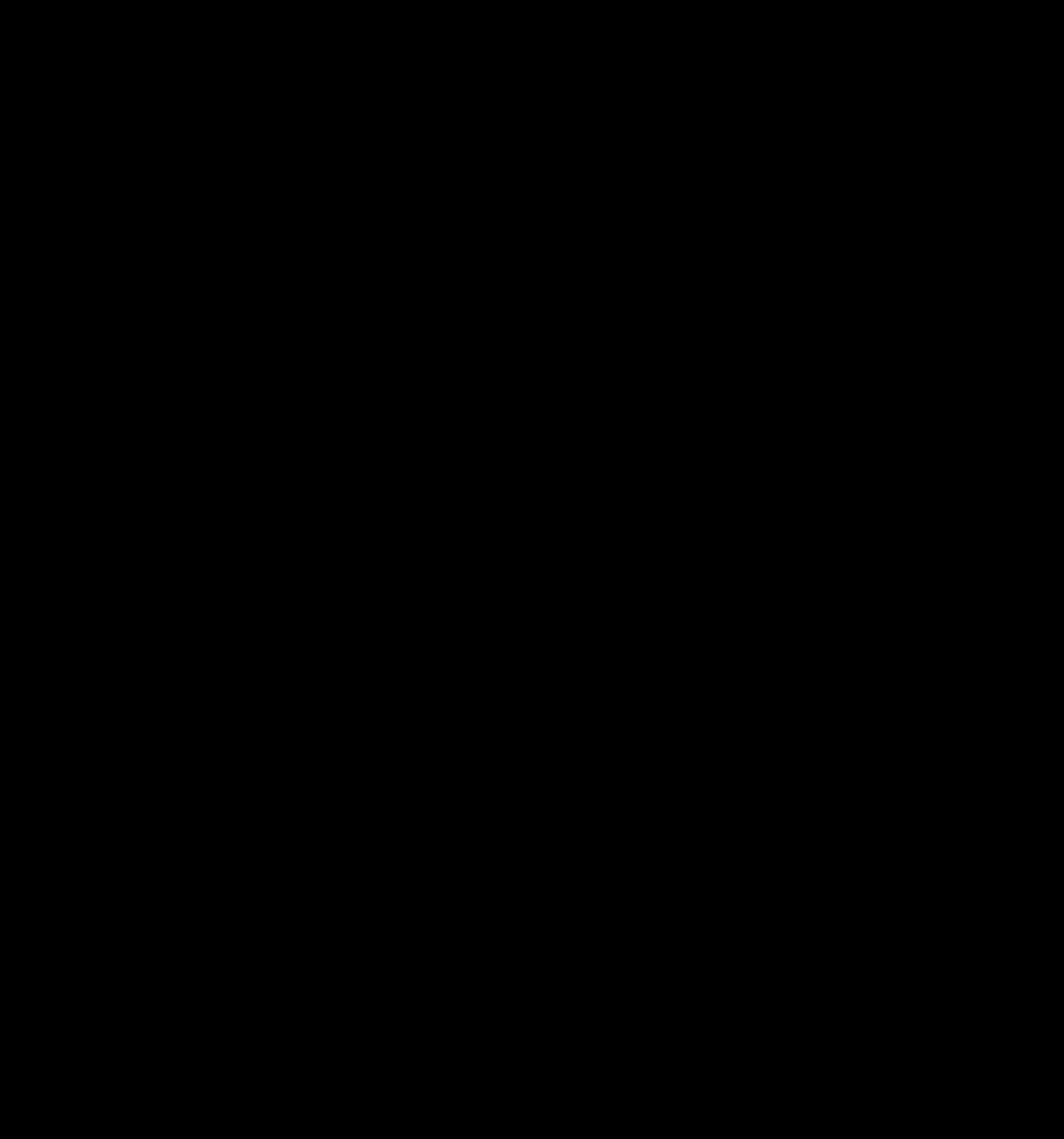




3

Dentate  
photographs















Increased stability













# 1. Lip Support

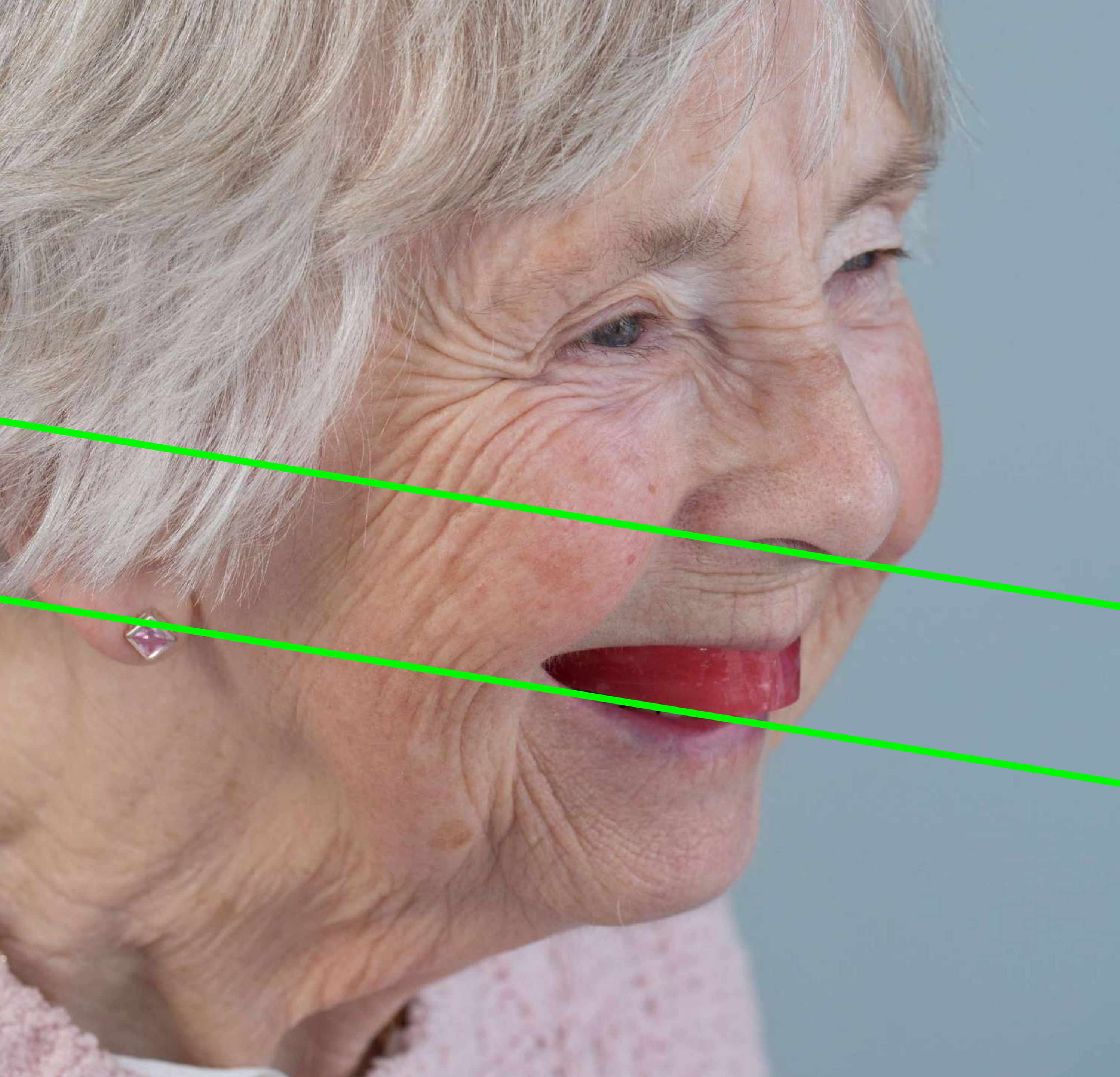




## 2. Incisal plane







3. Occlusal plane

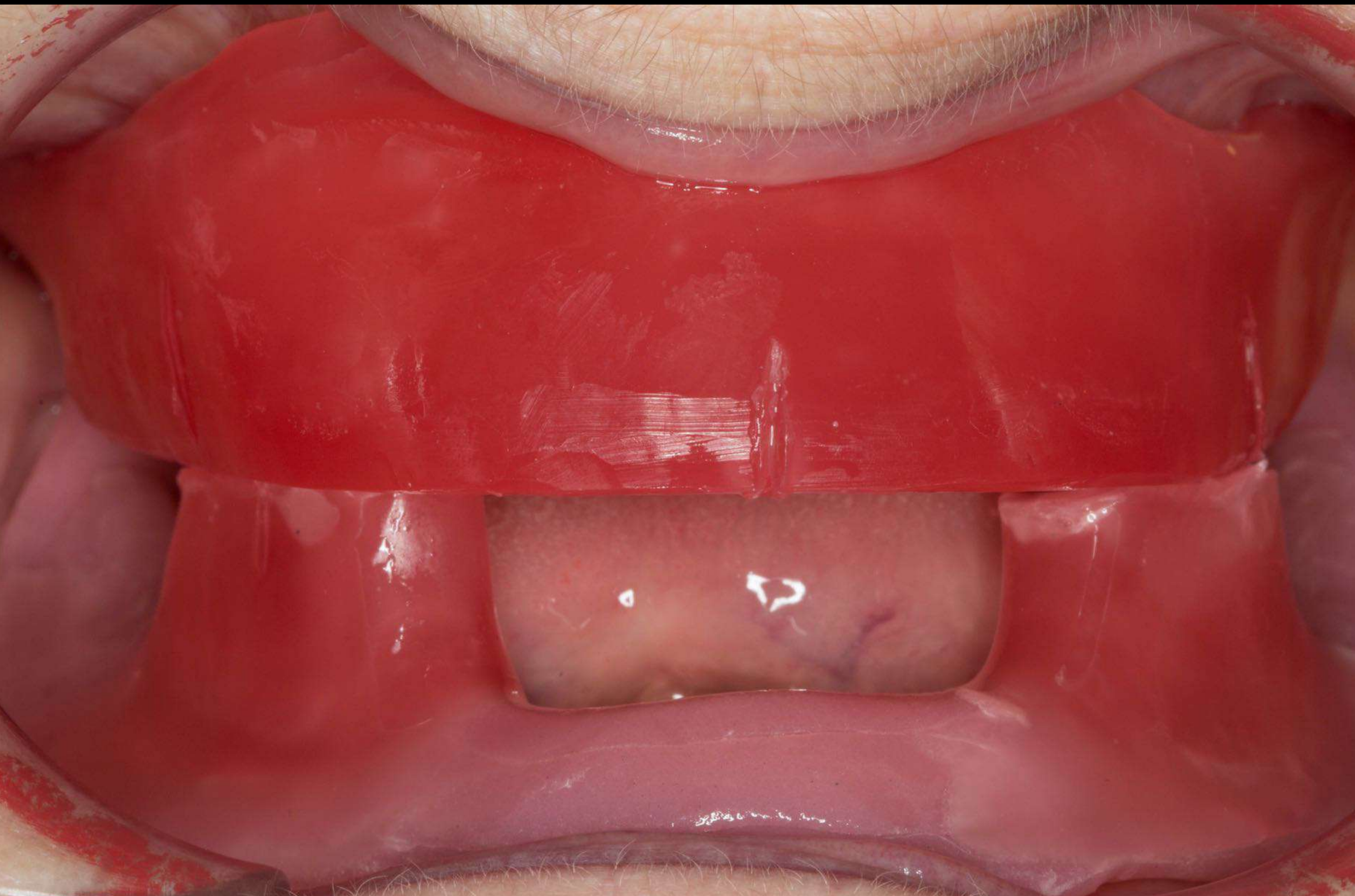




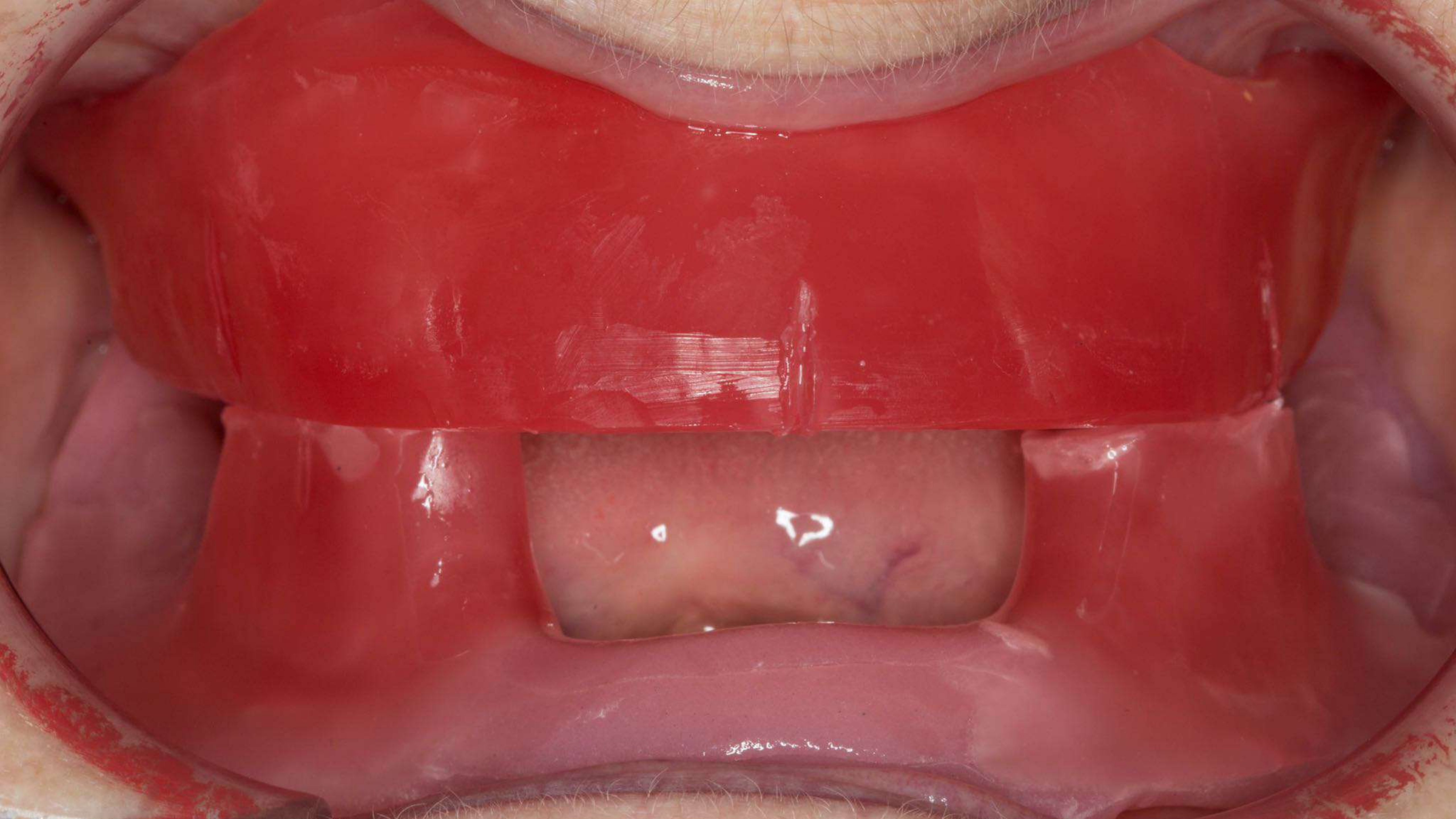
4 & 5 Buccal corridors and centre line



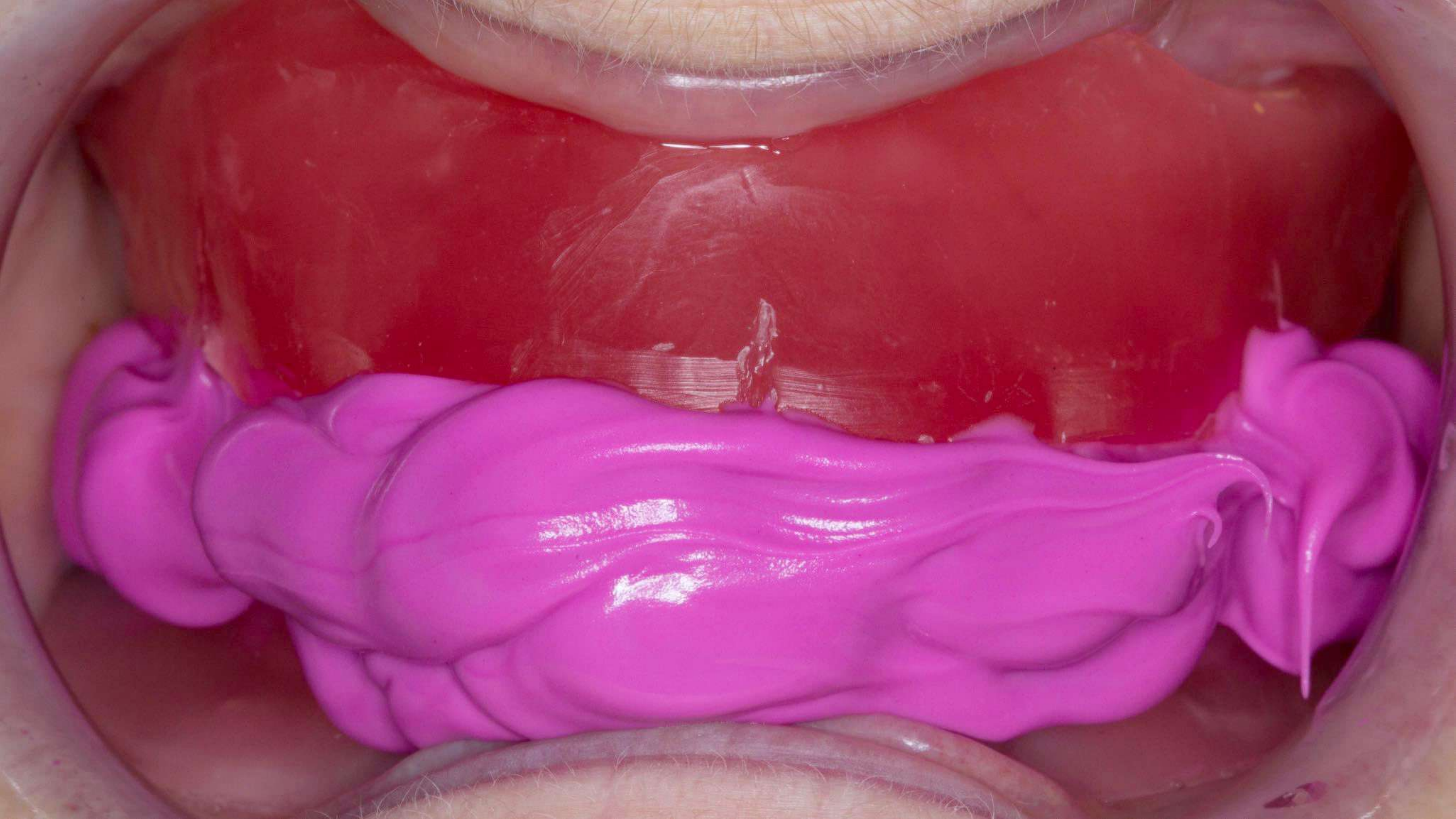
## 6. Occlusal Vertical Dimension































4

Impression  
making





















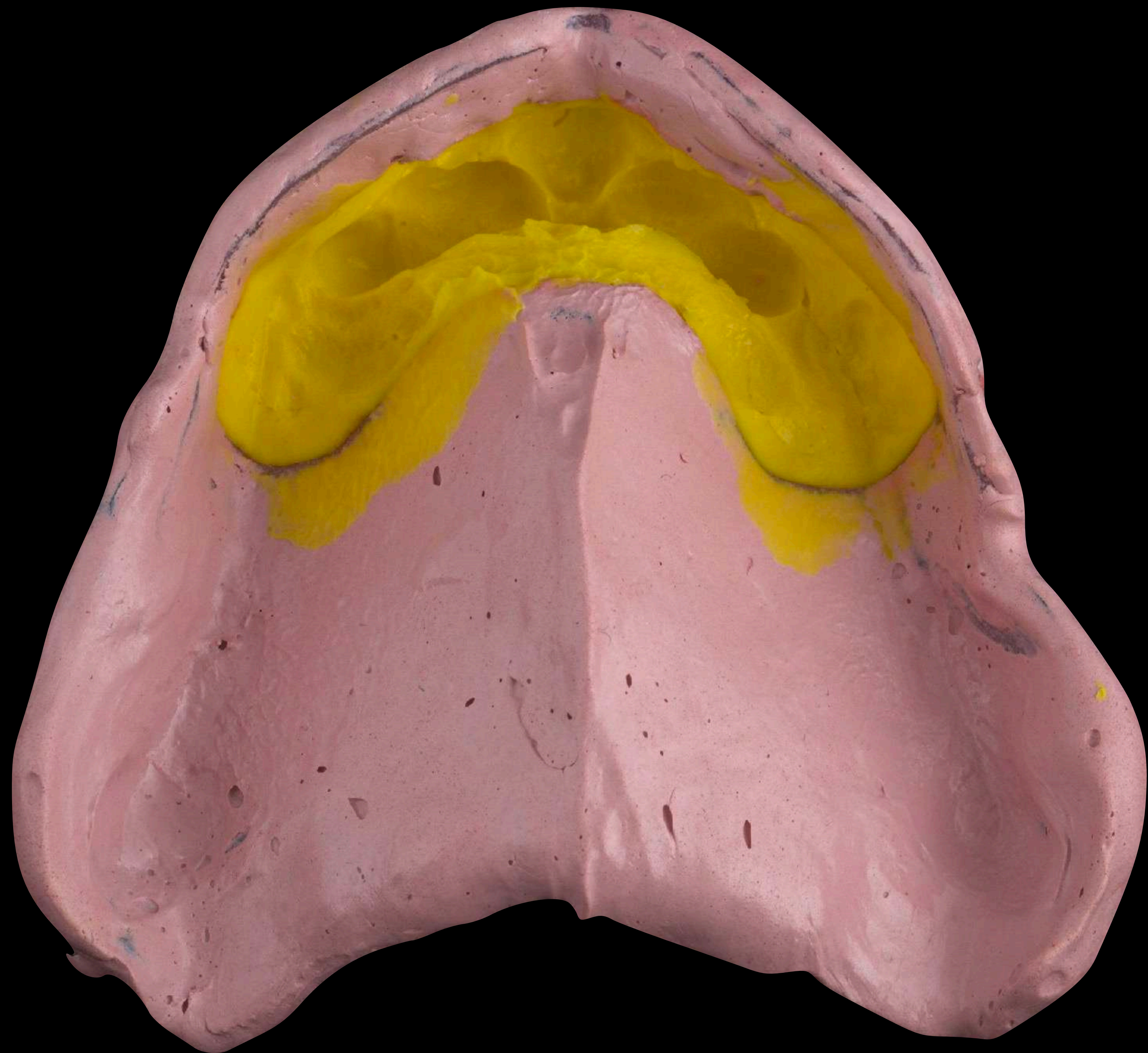












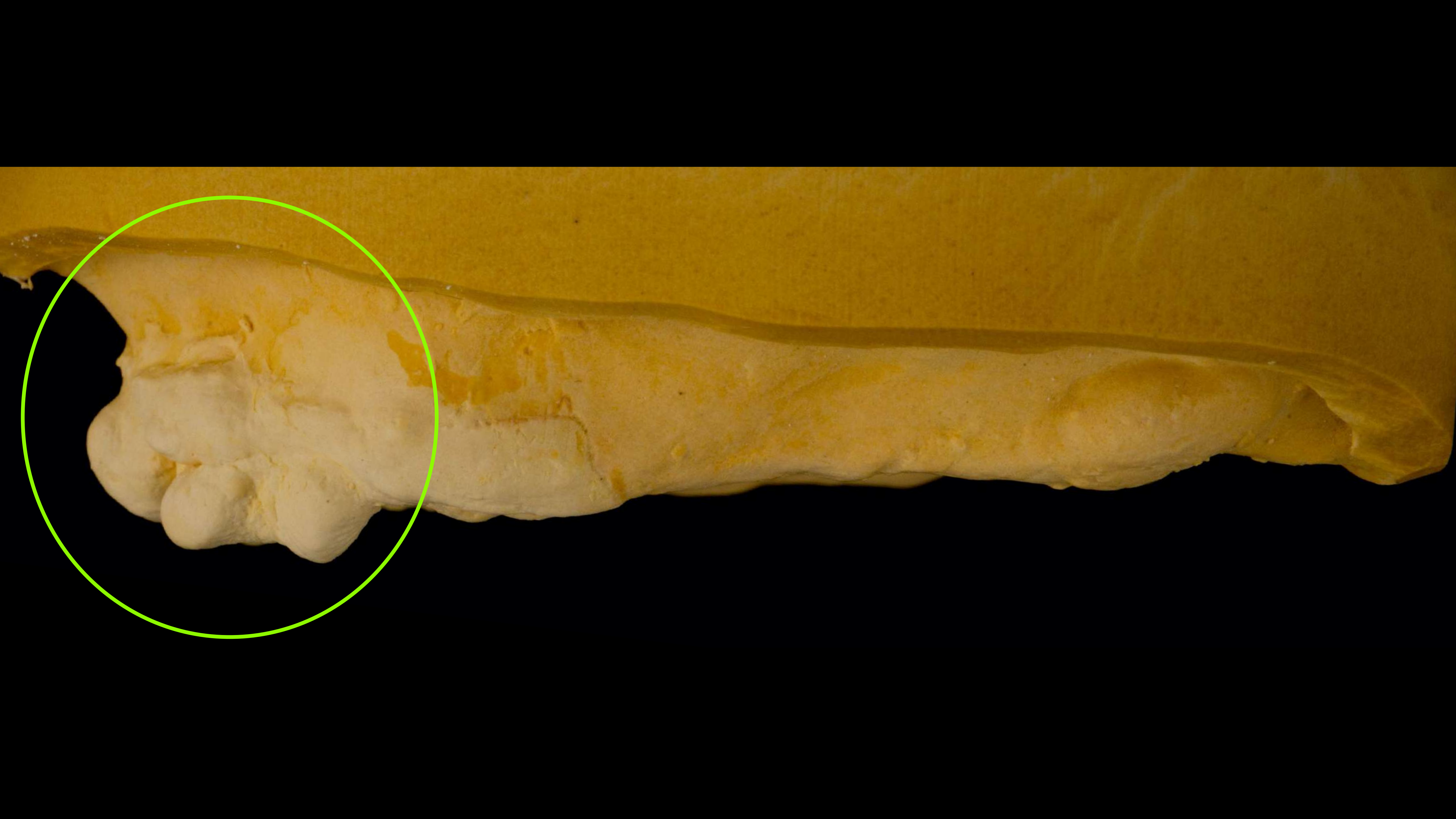




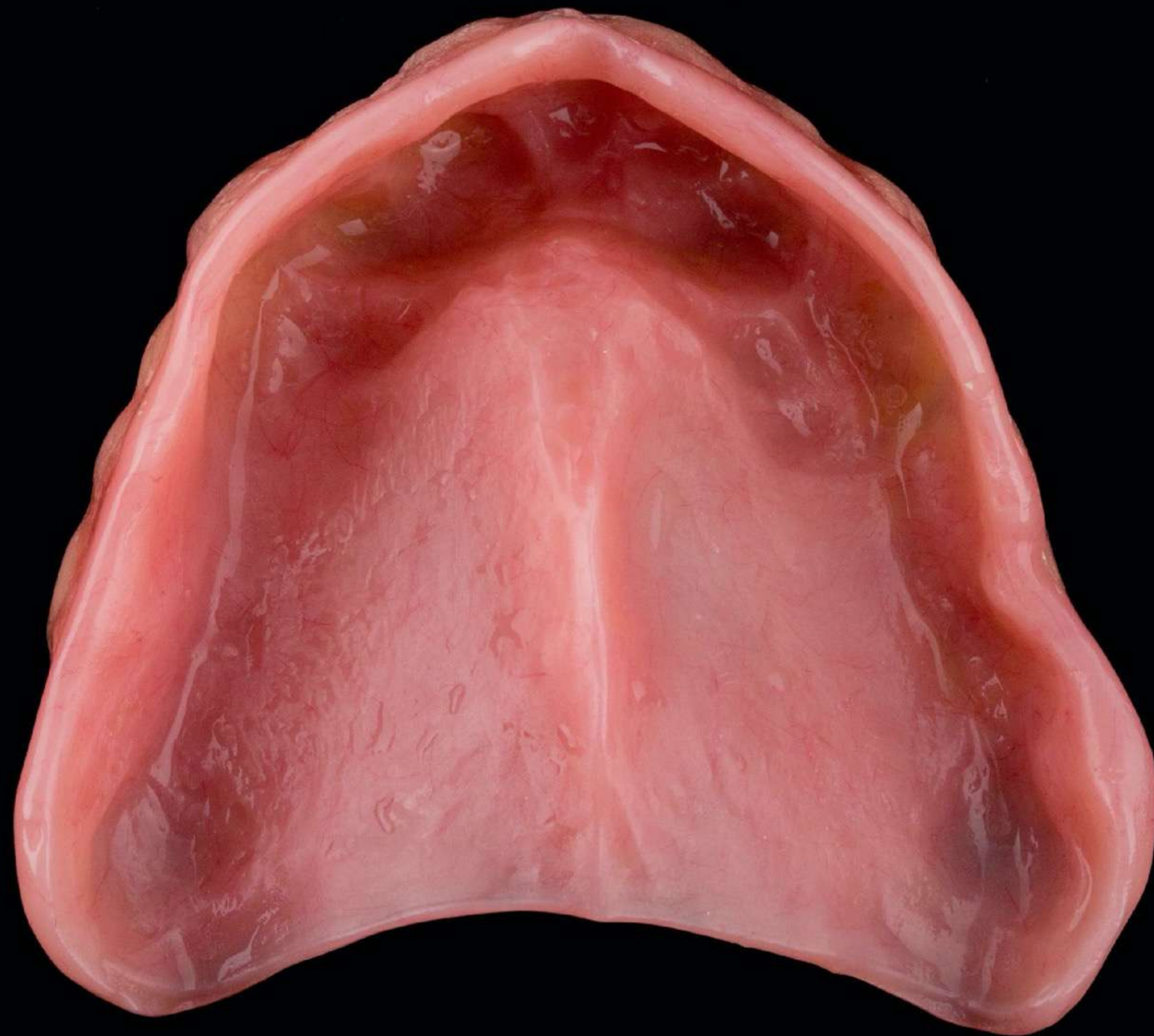
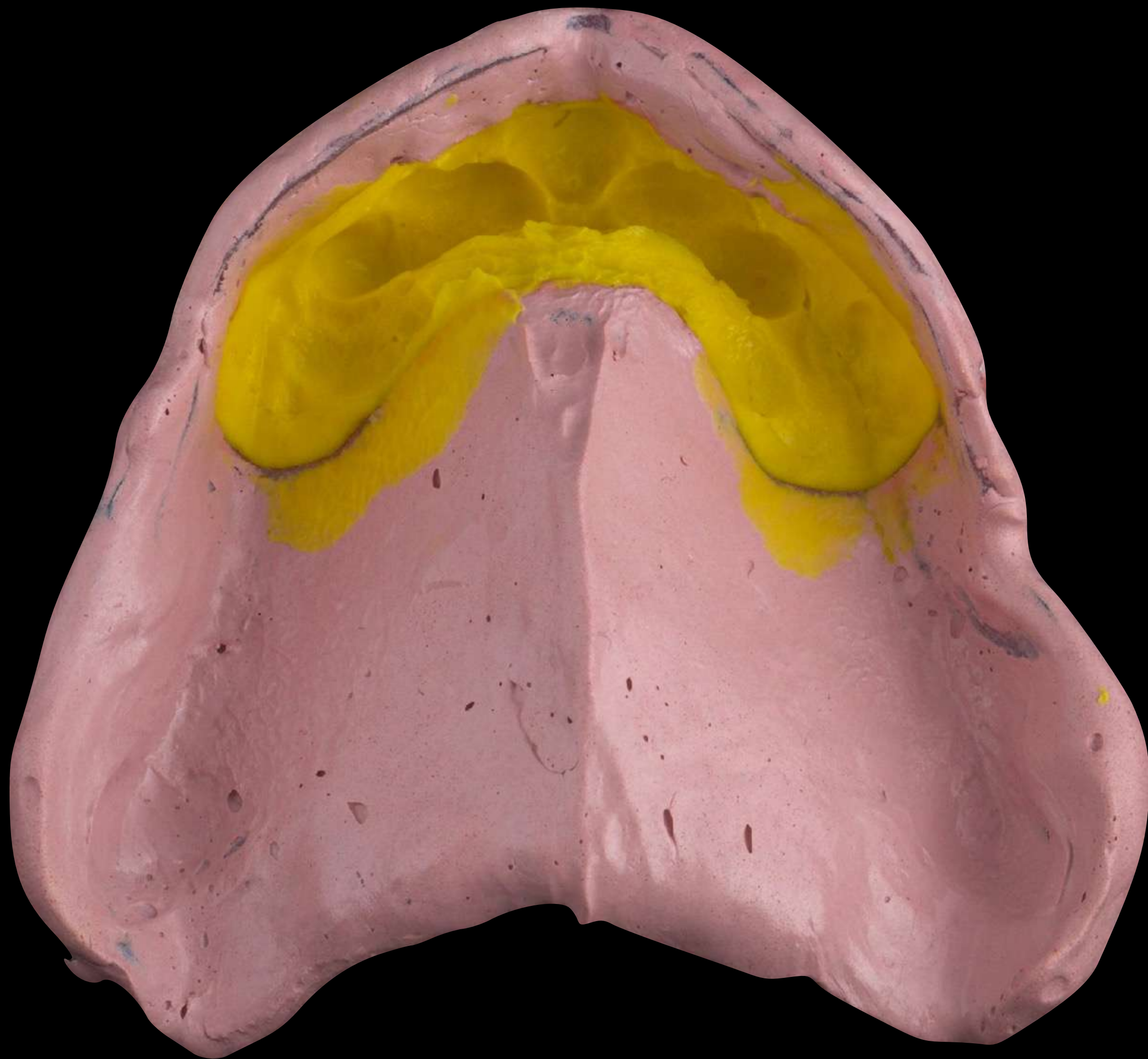
















Fast x 8











# Shape































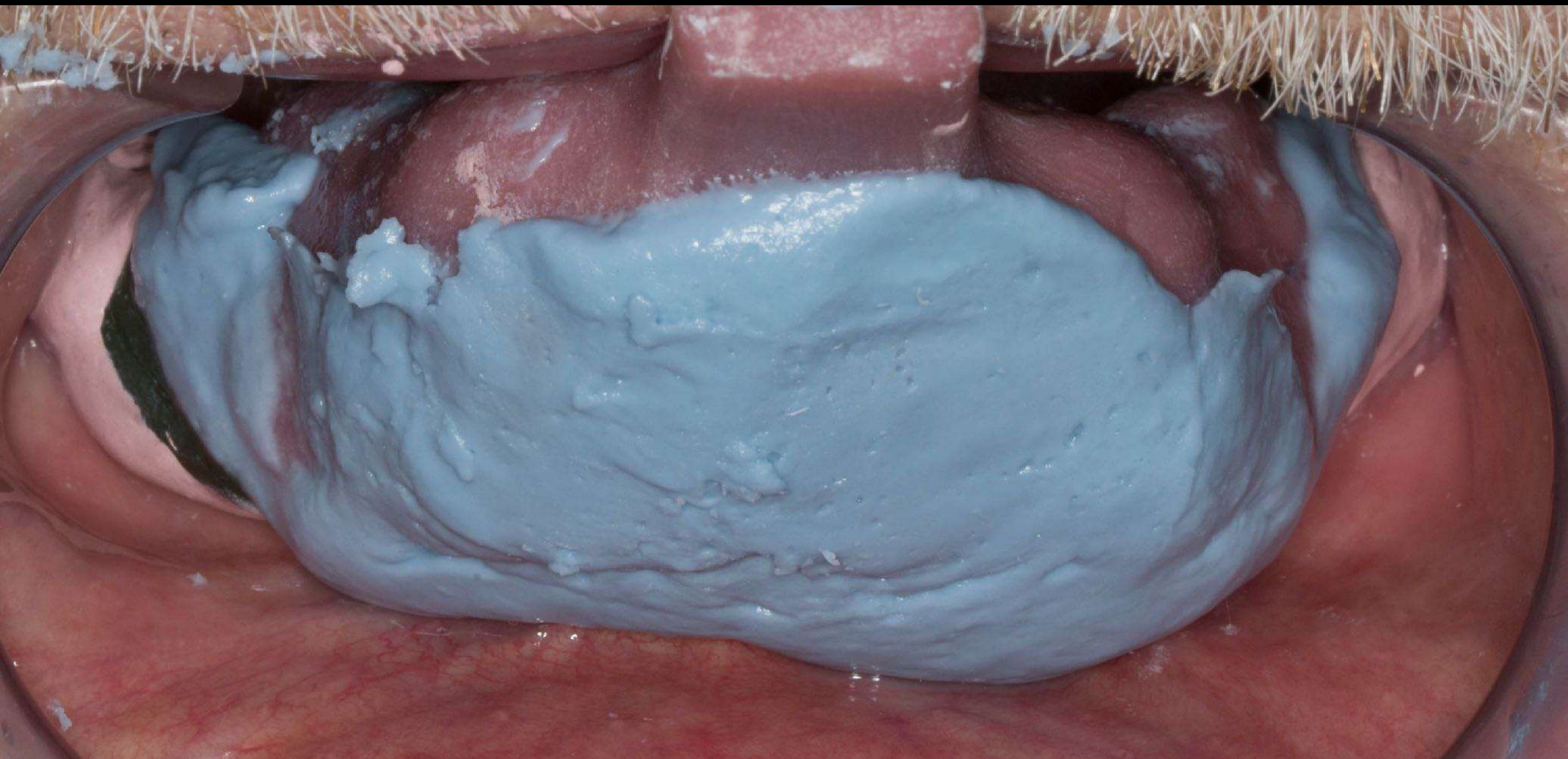


















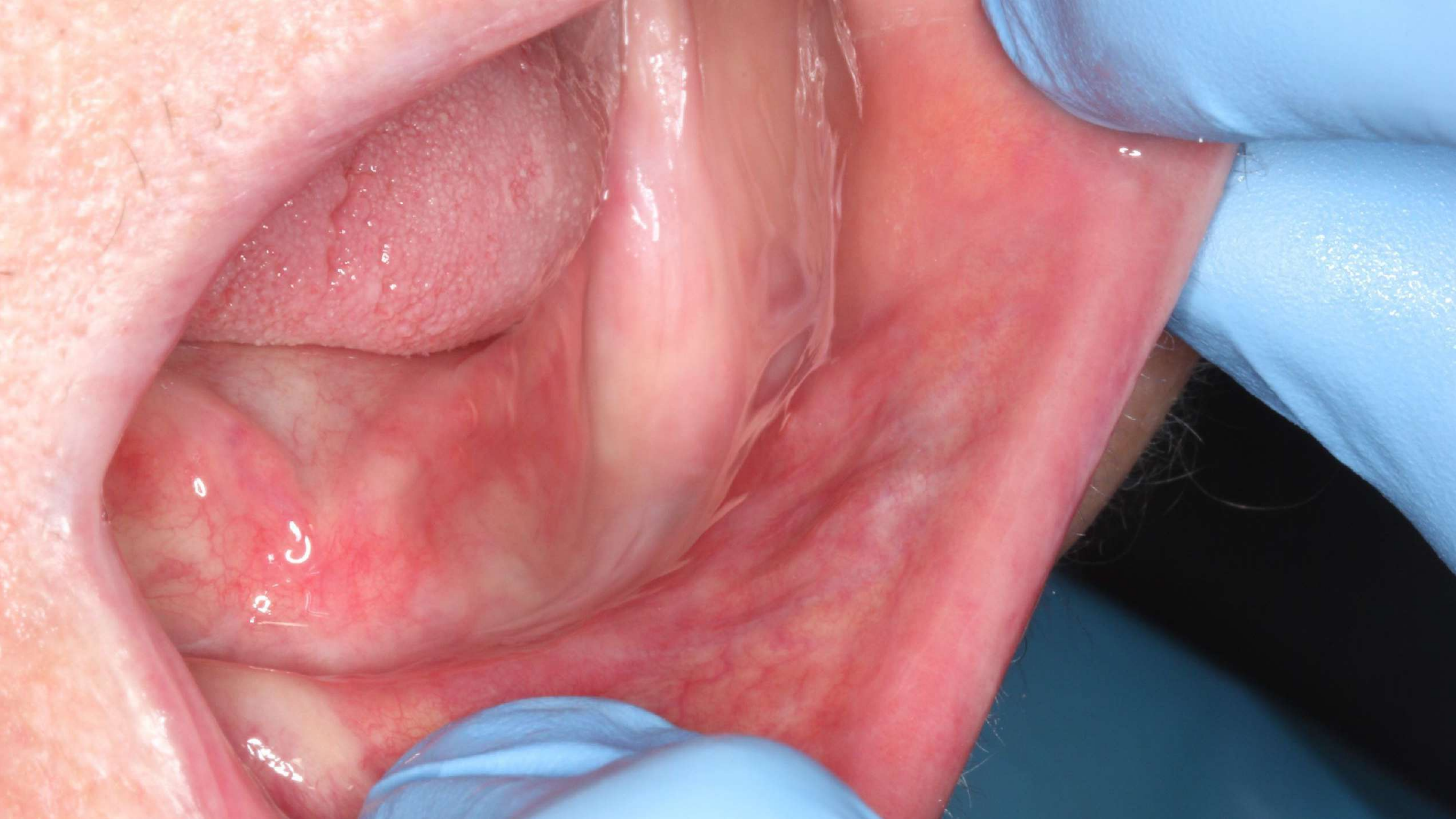






Joan with *Alzheimers*  
A stable lower complete  
denture is crucial







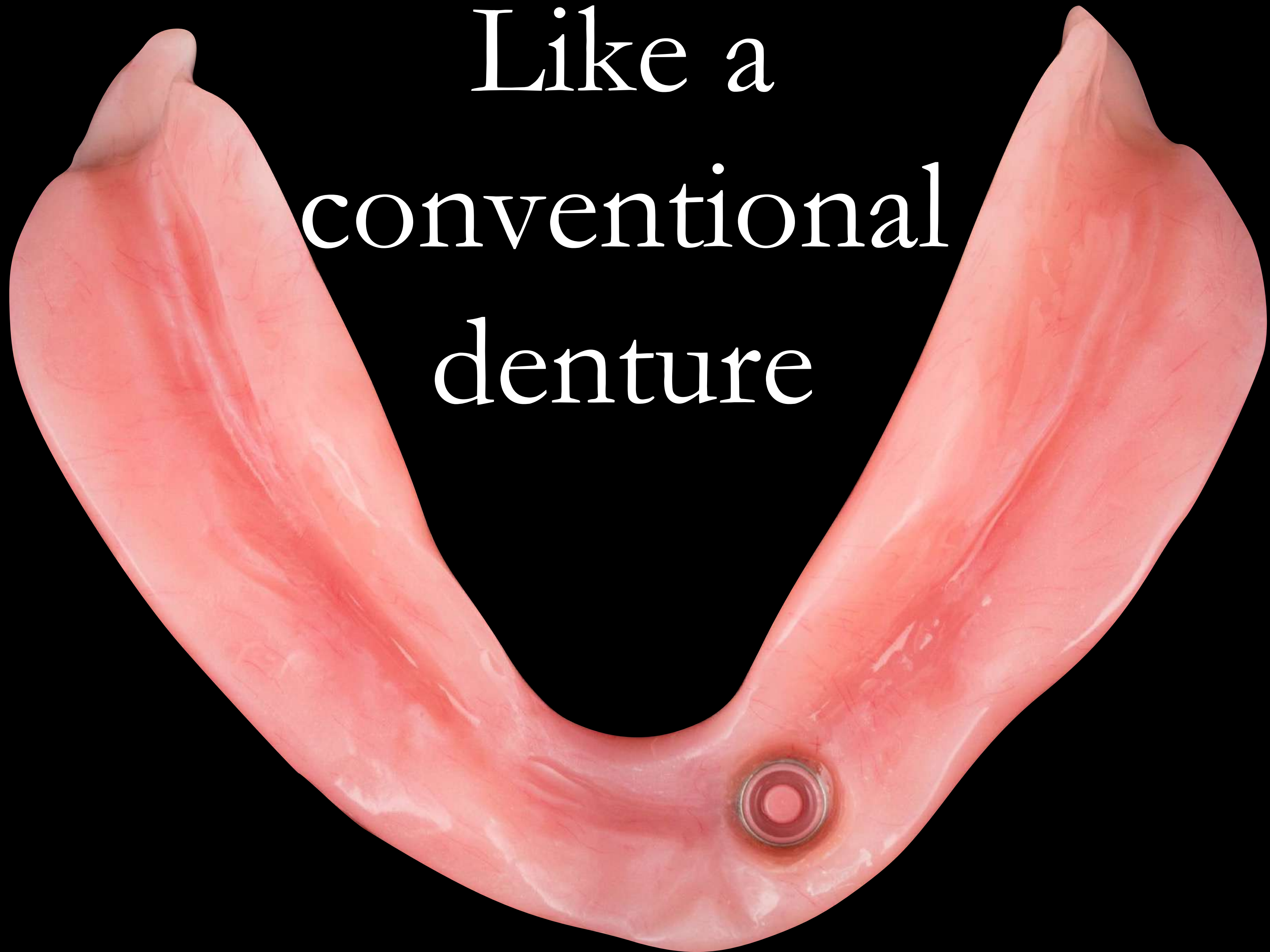








Like a  
conventional  
denture

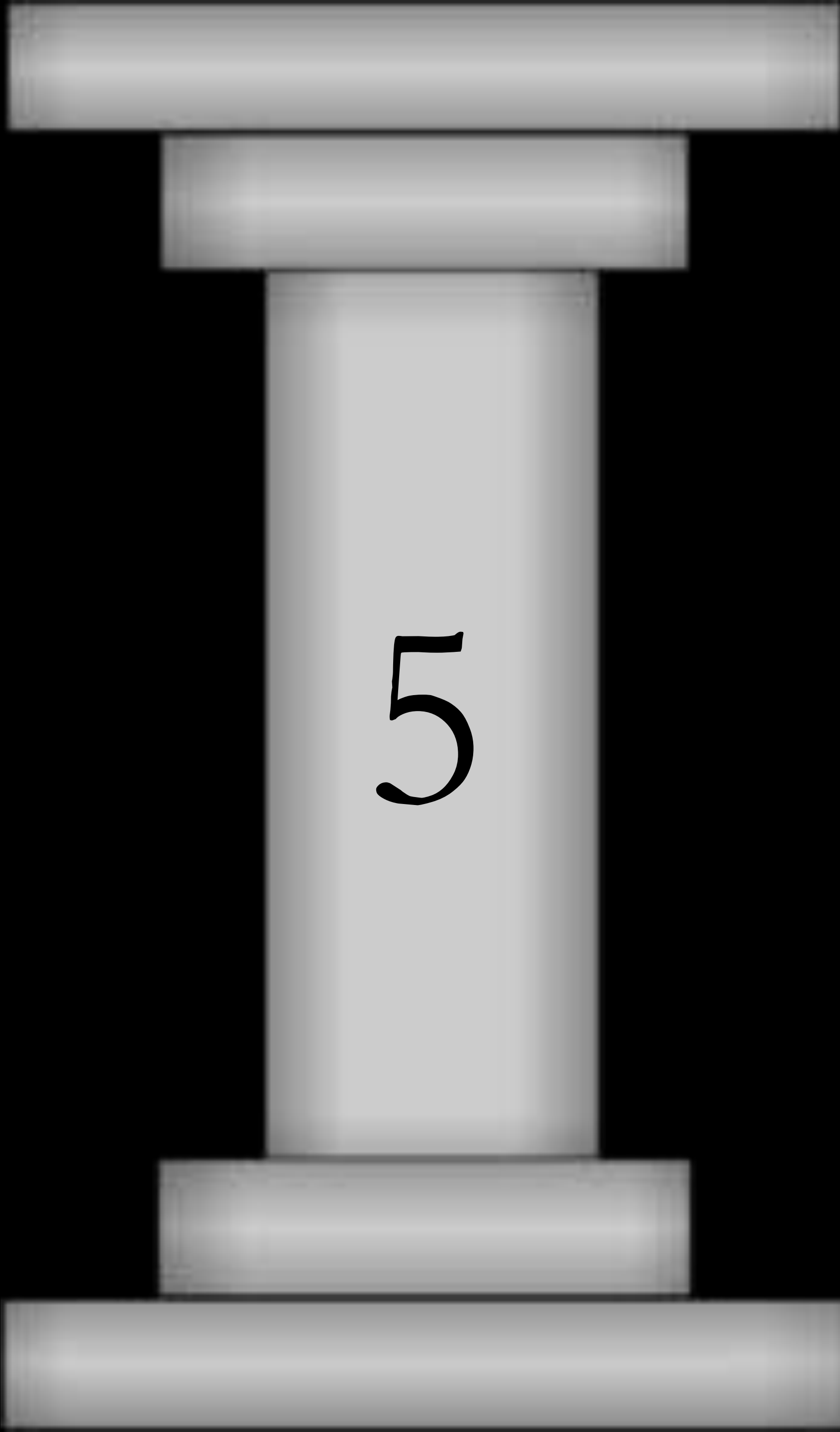




# Like a conventional denture





A large, stylized number 5 is centered within a white, 3D-rendered column structure. The column has a wide base, a narrower middle section, and a wide top section, all with a slight gradient and shadow. The background is solid black.

5

Try-in videos









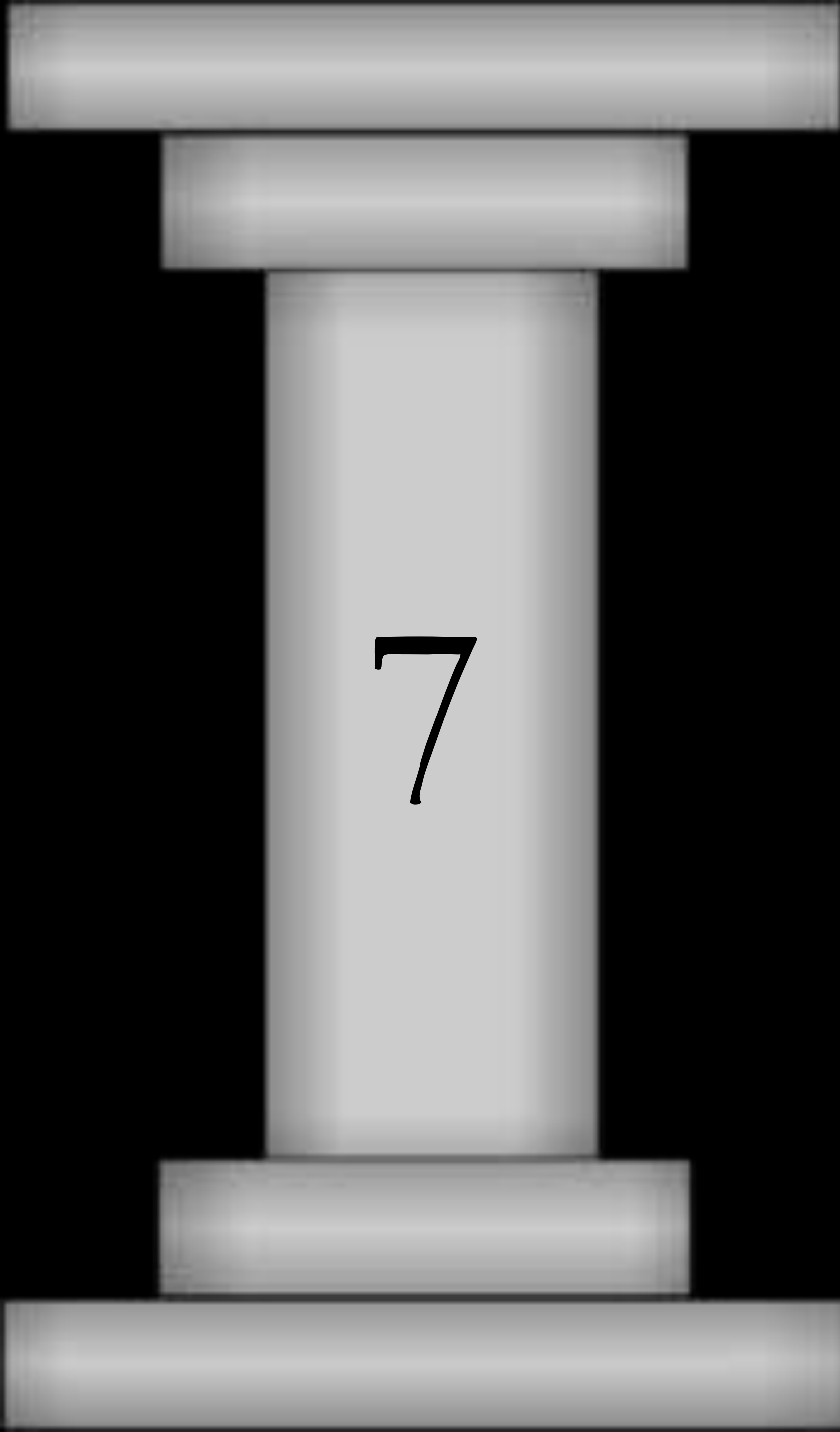








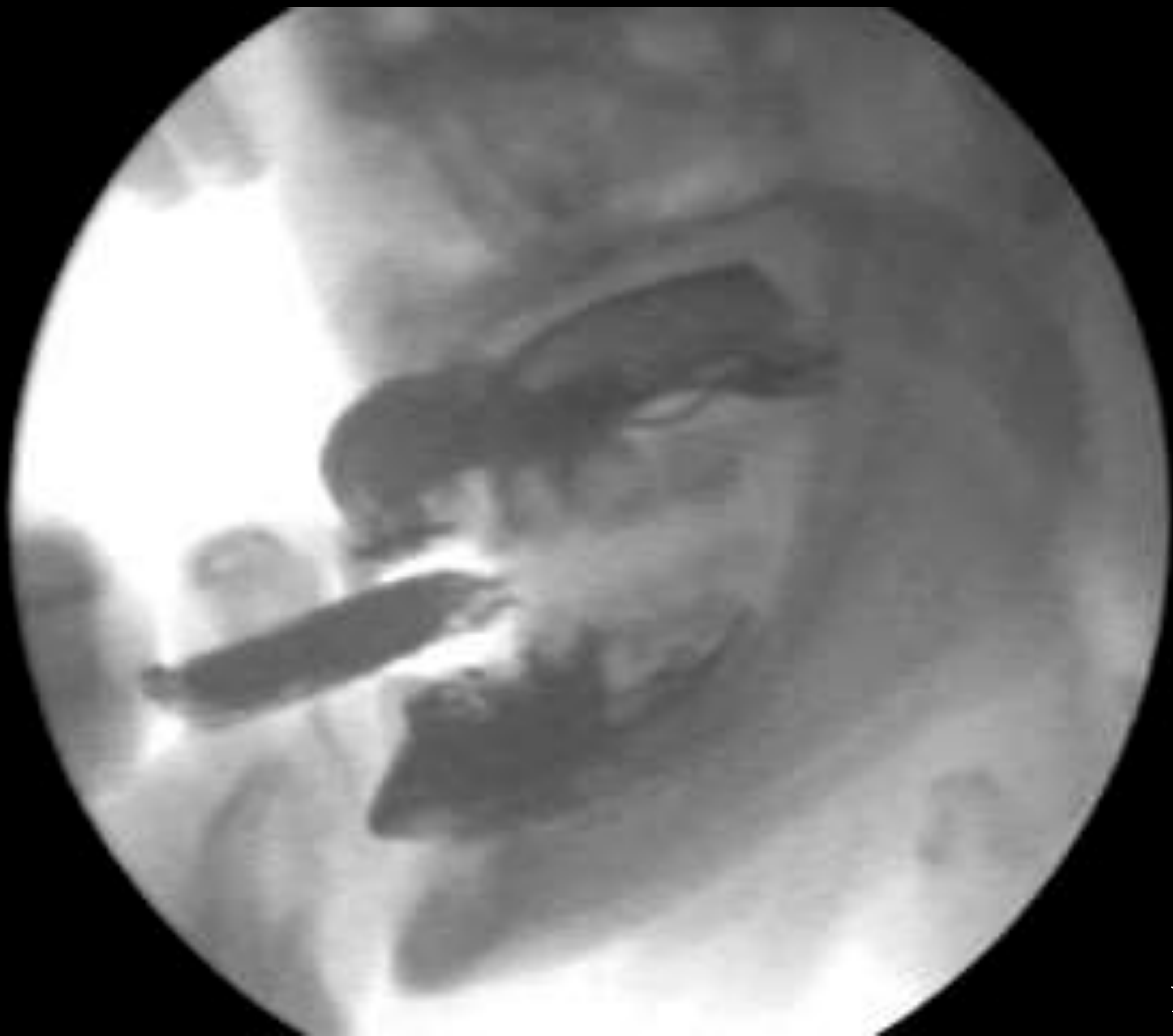


A large, stylized number 7 is centered within a white, 3D-rendered column structure. The column has a wide base, a narrower middle section, and a wide top section, all with a slight gradient and shadow. The background is solid black.

7

Patient  
communication





**Prof Roger Watson**





Consultation discussion



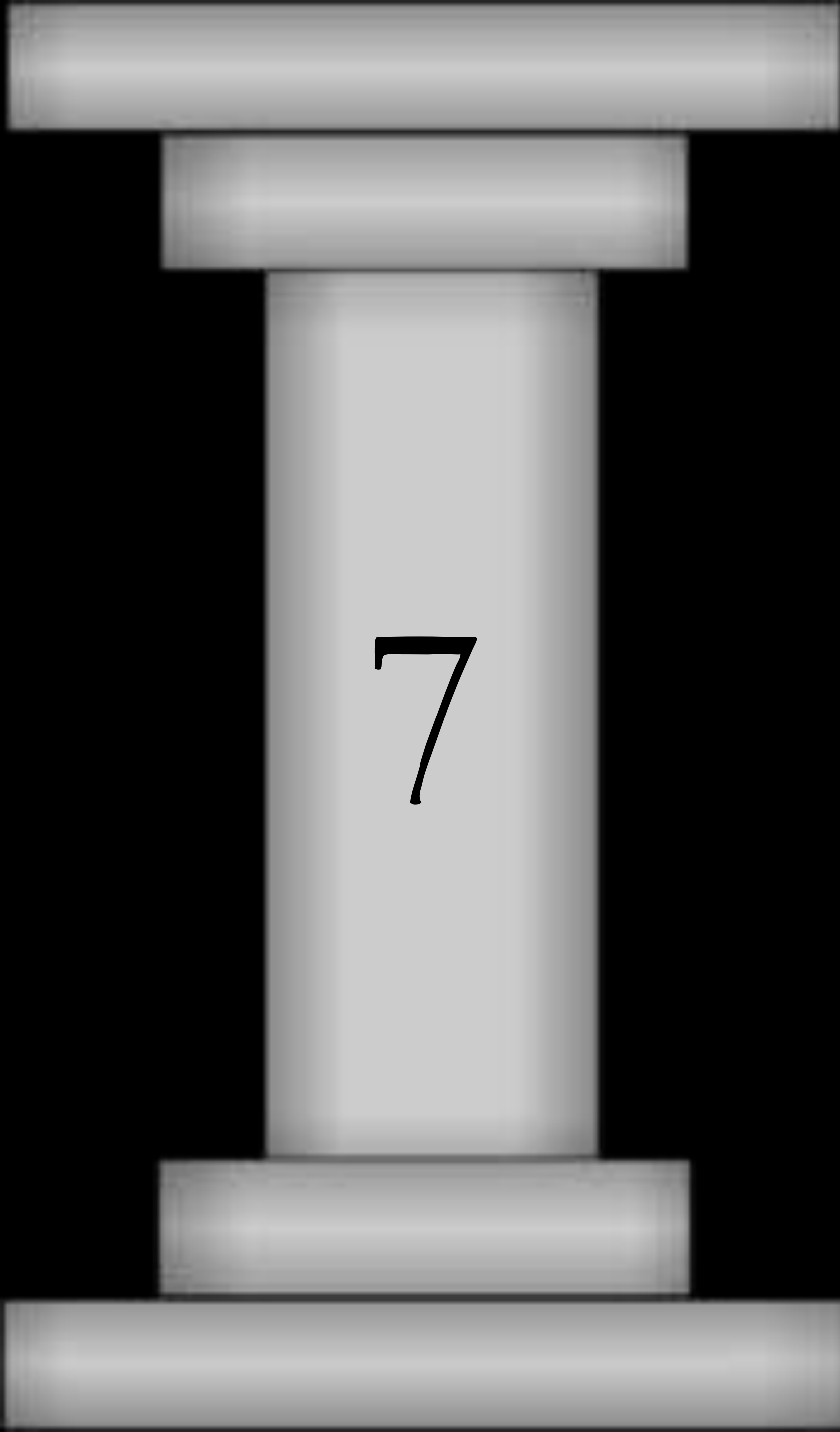
Over  
promise

Under  
deliver

Under  
promise

Over  
deliver





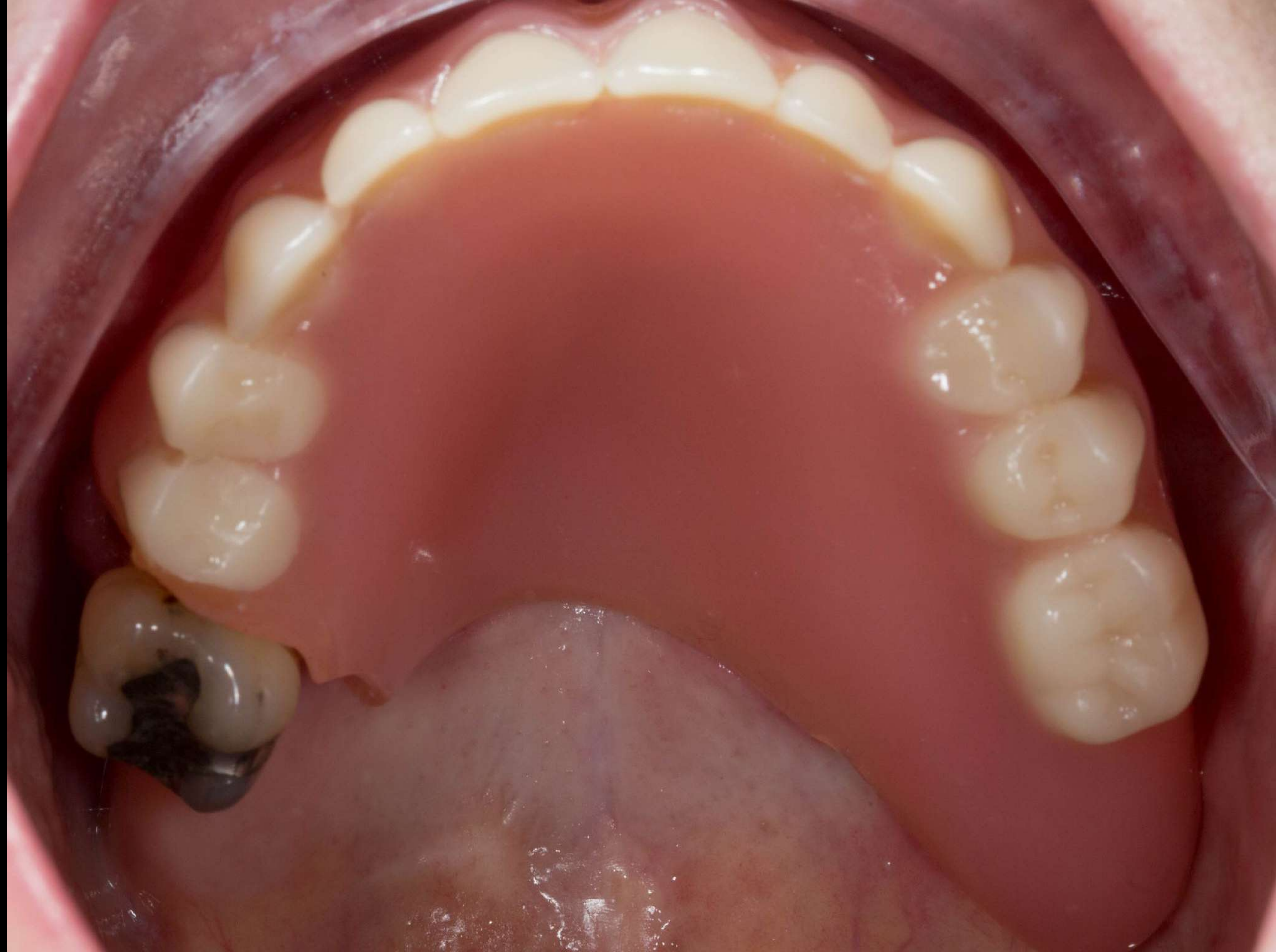
7

Partial dentures















# Window denture

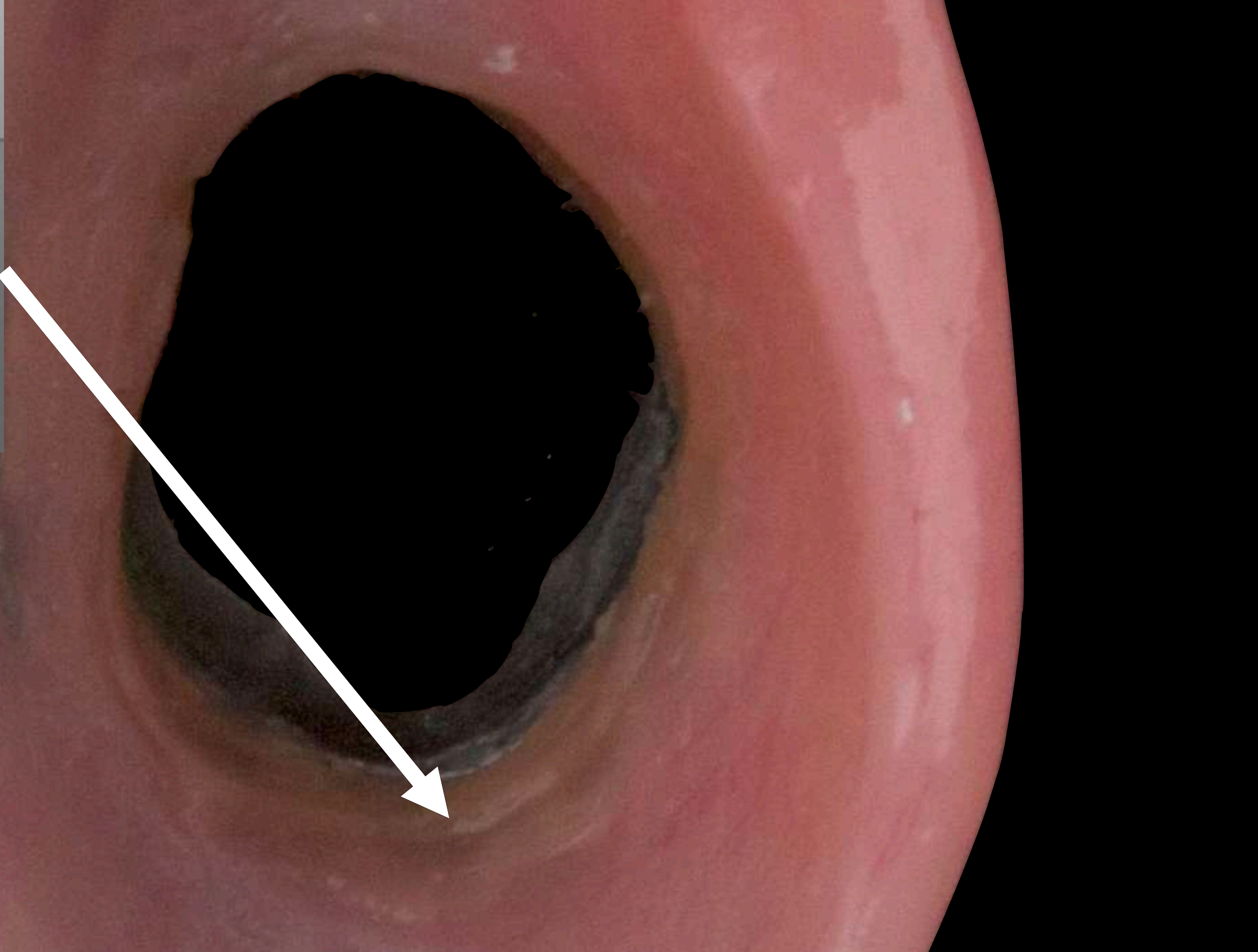




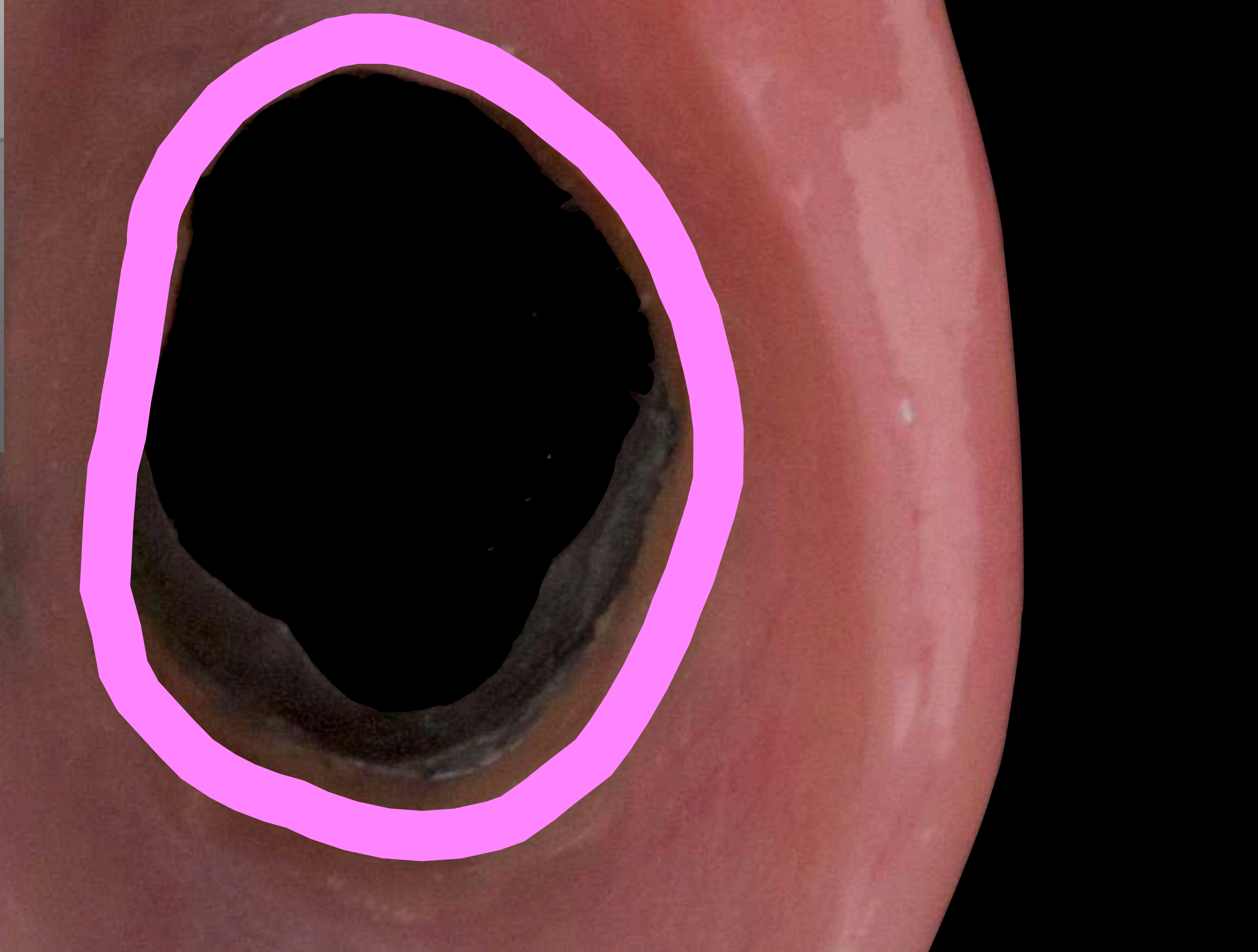
Window  
denture



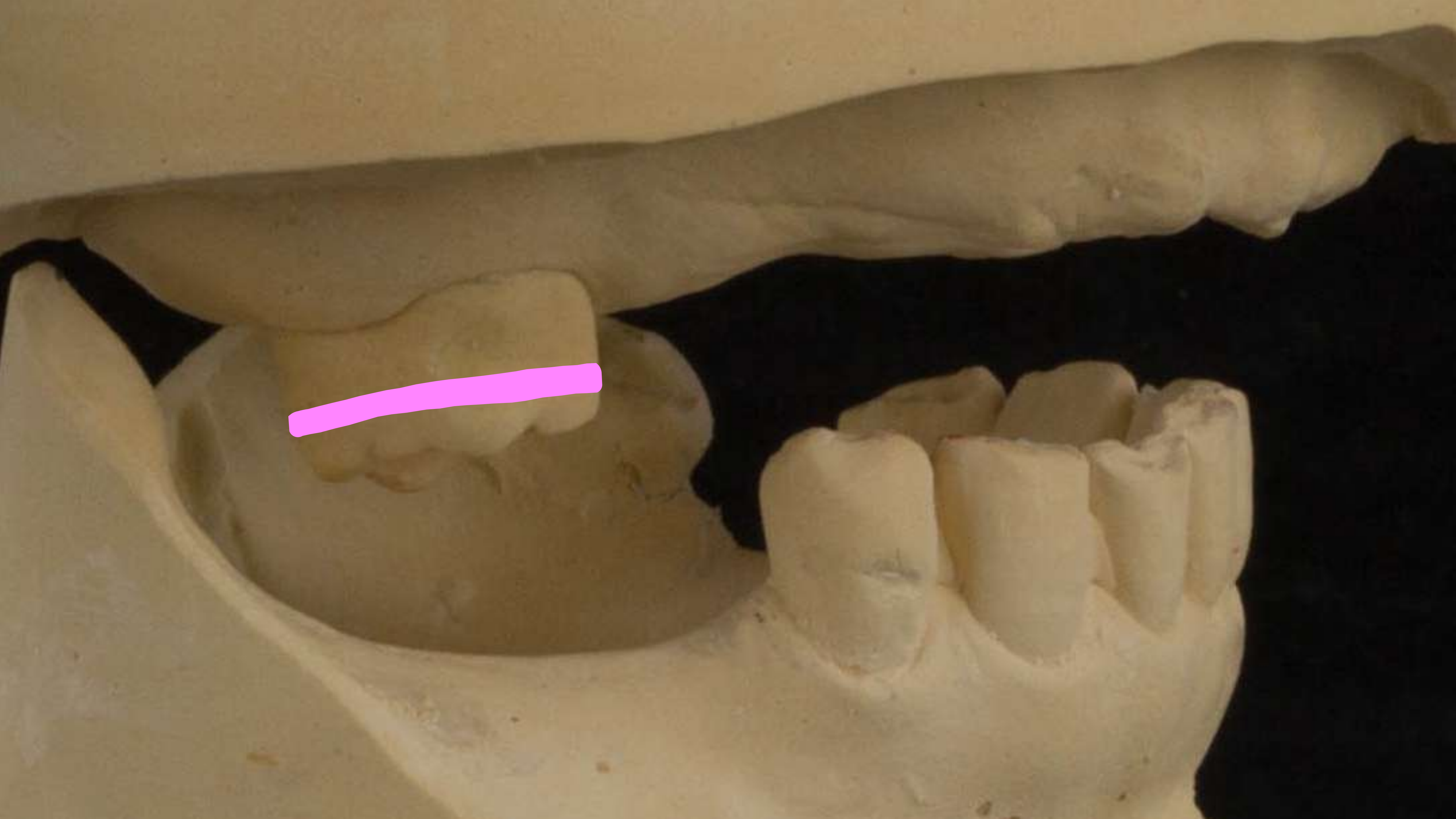




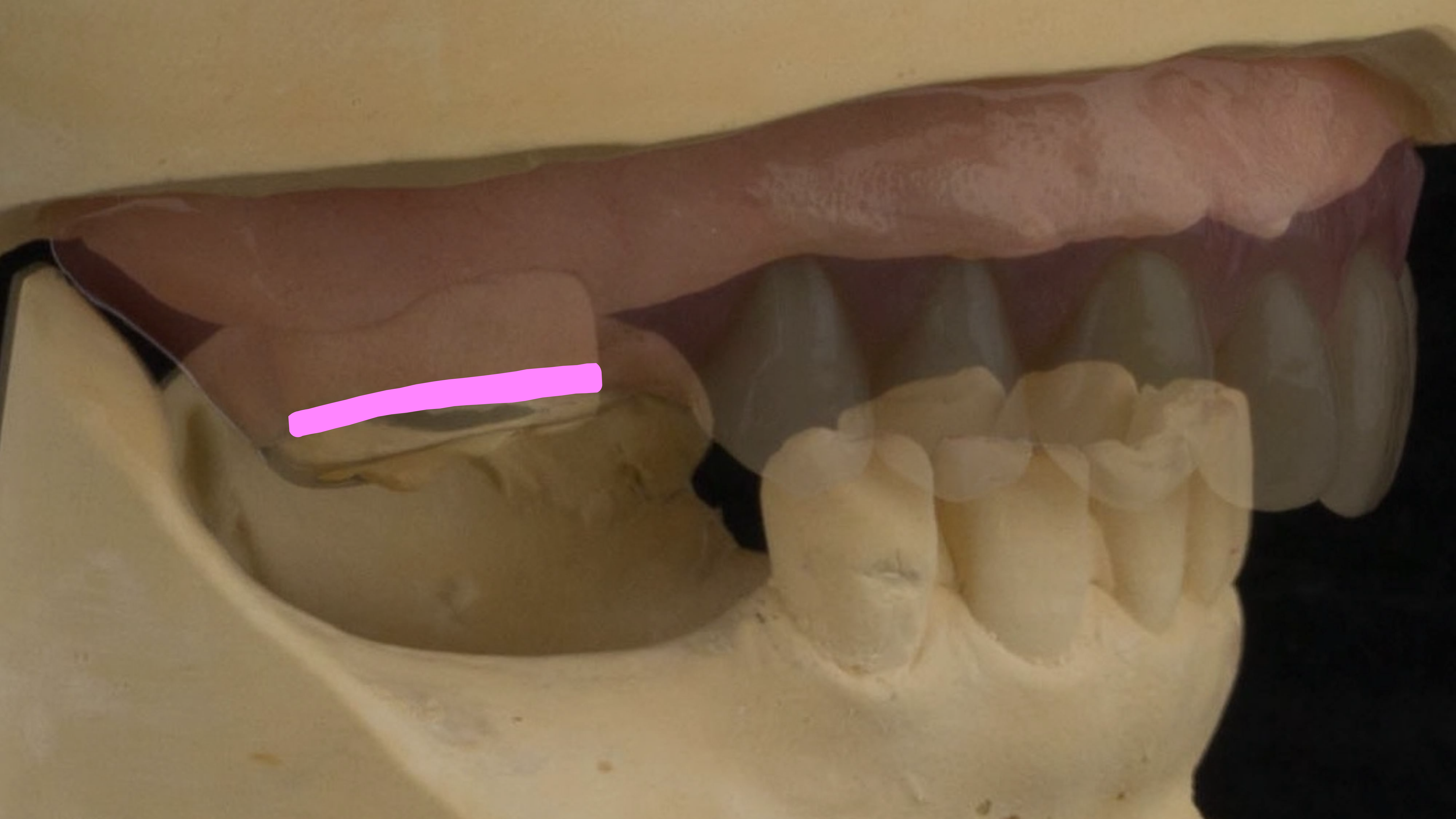


















If support tooth fails - addition to convert to complete denture









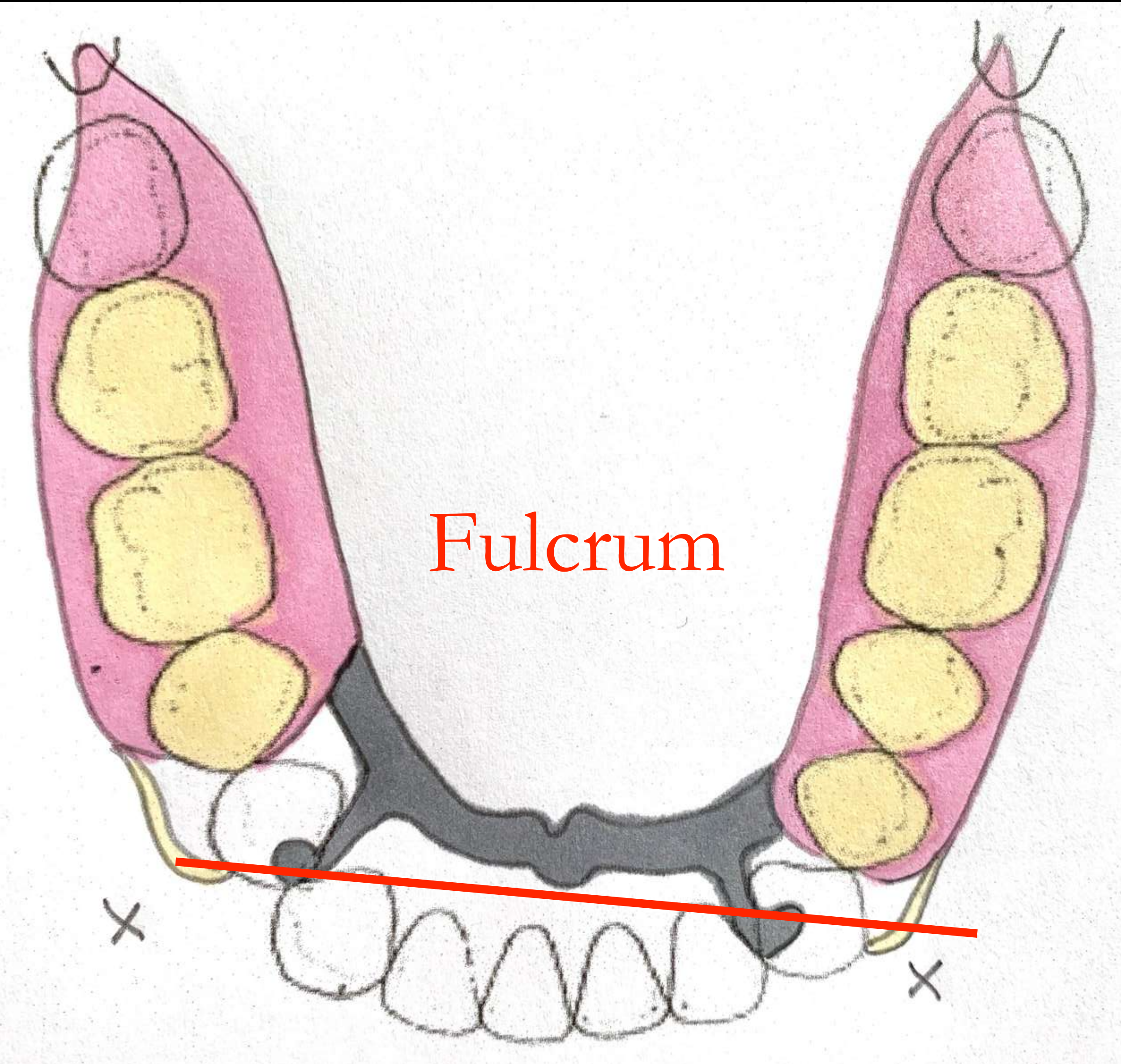


RPD design: a need to focus on Hygienic Principles.

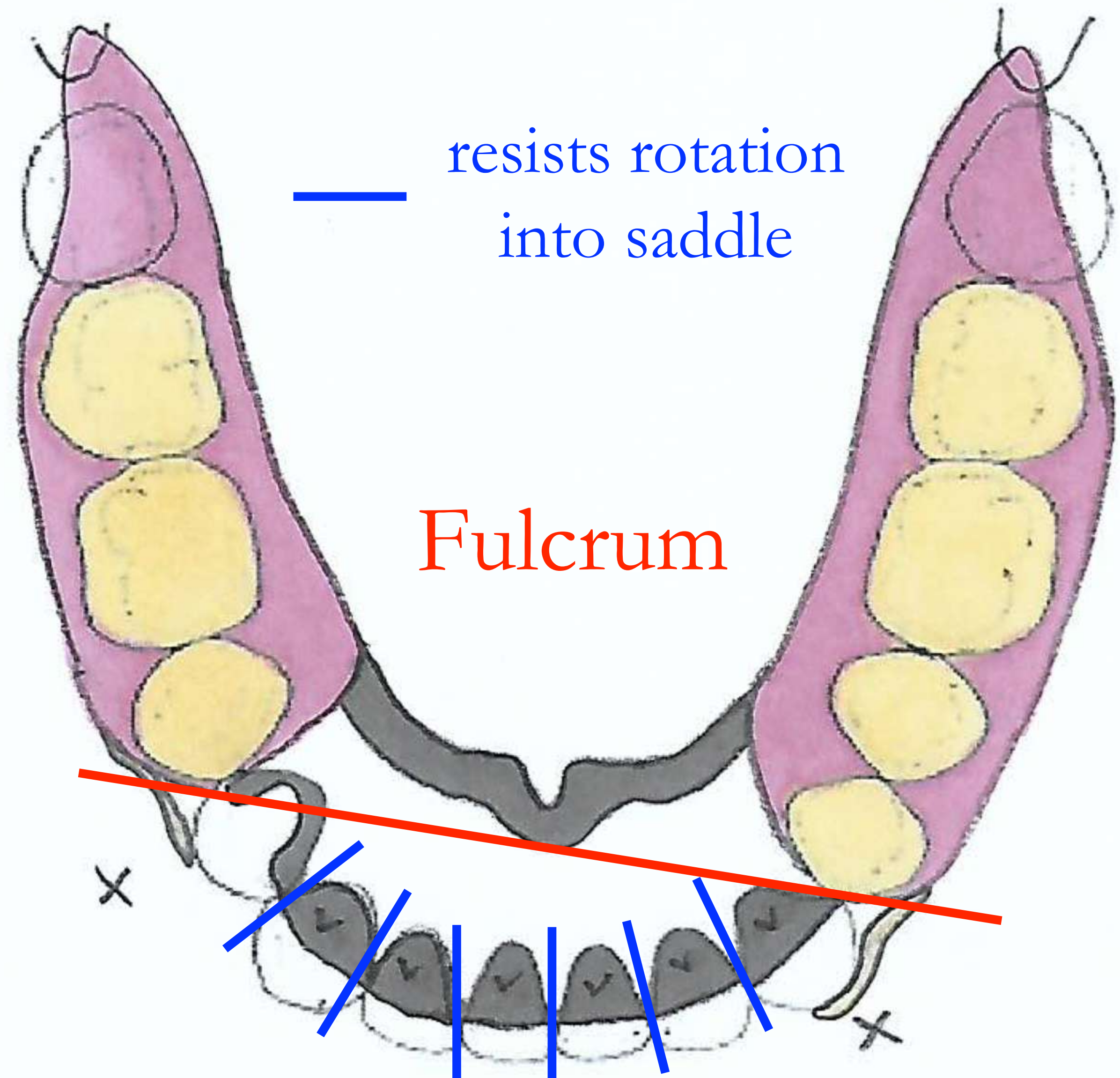
Öwall B et al Int J Pros 2002



RPI system



v Scandinavian RPD system

















Composite rest seats

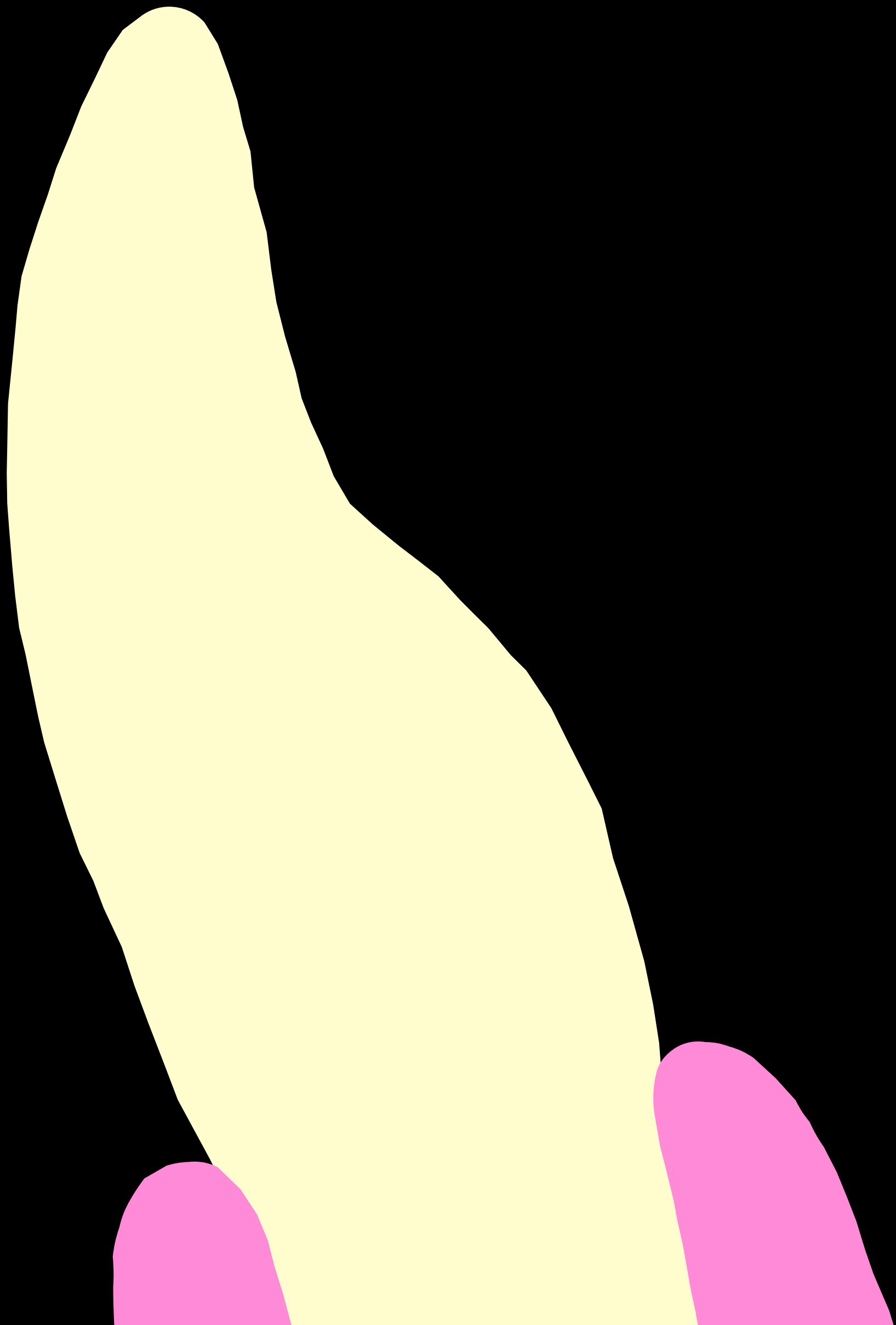


James S Brudvik

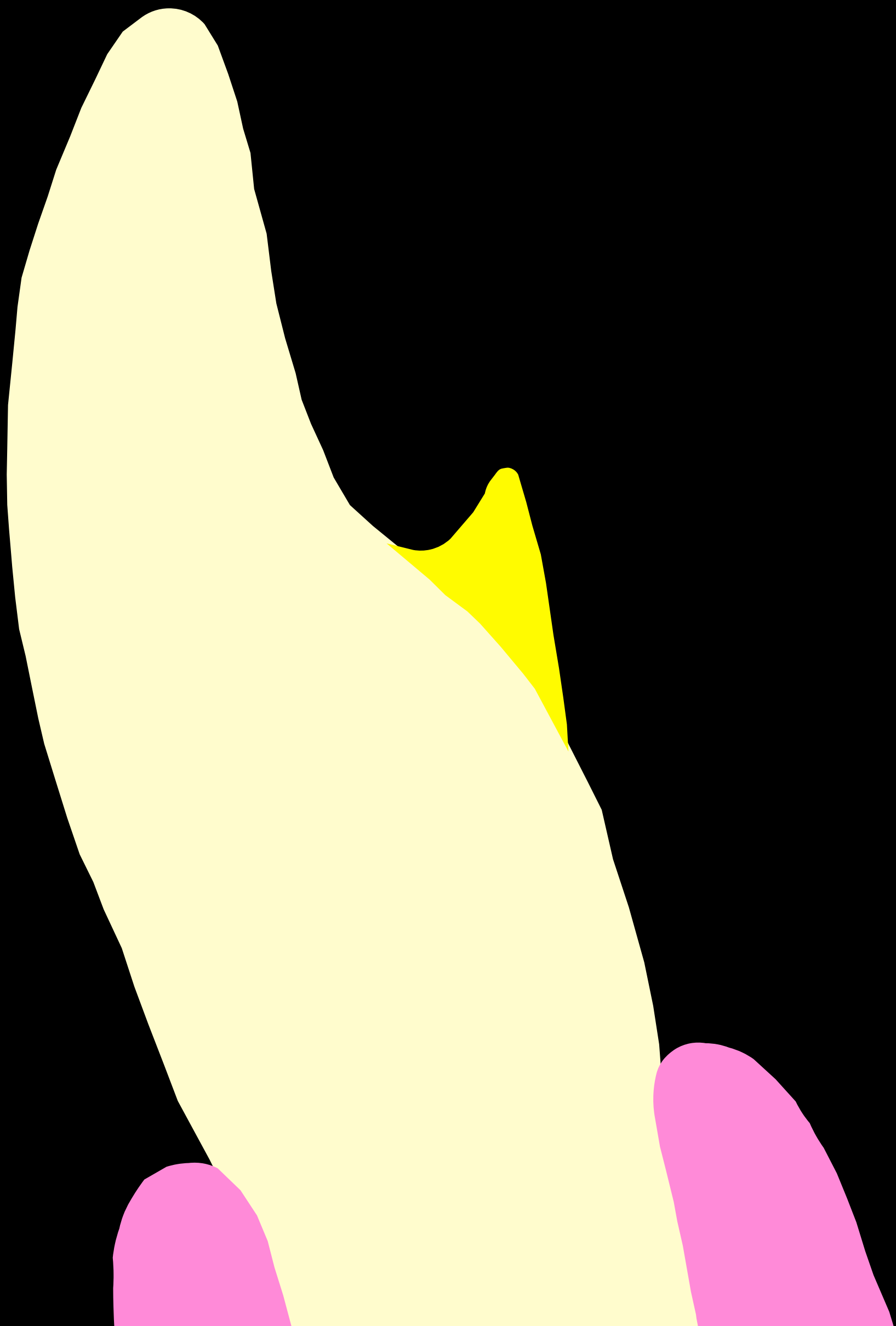




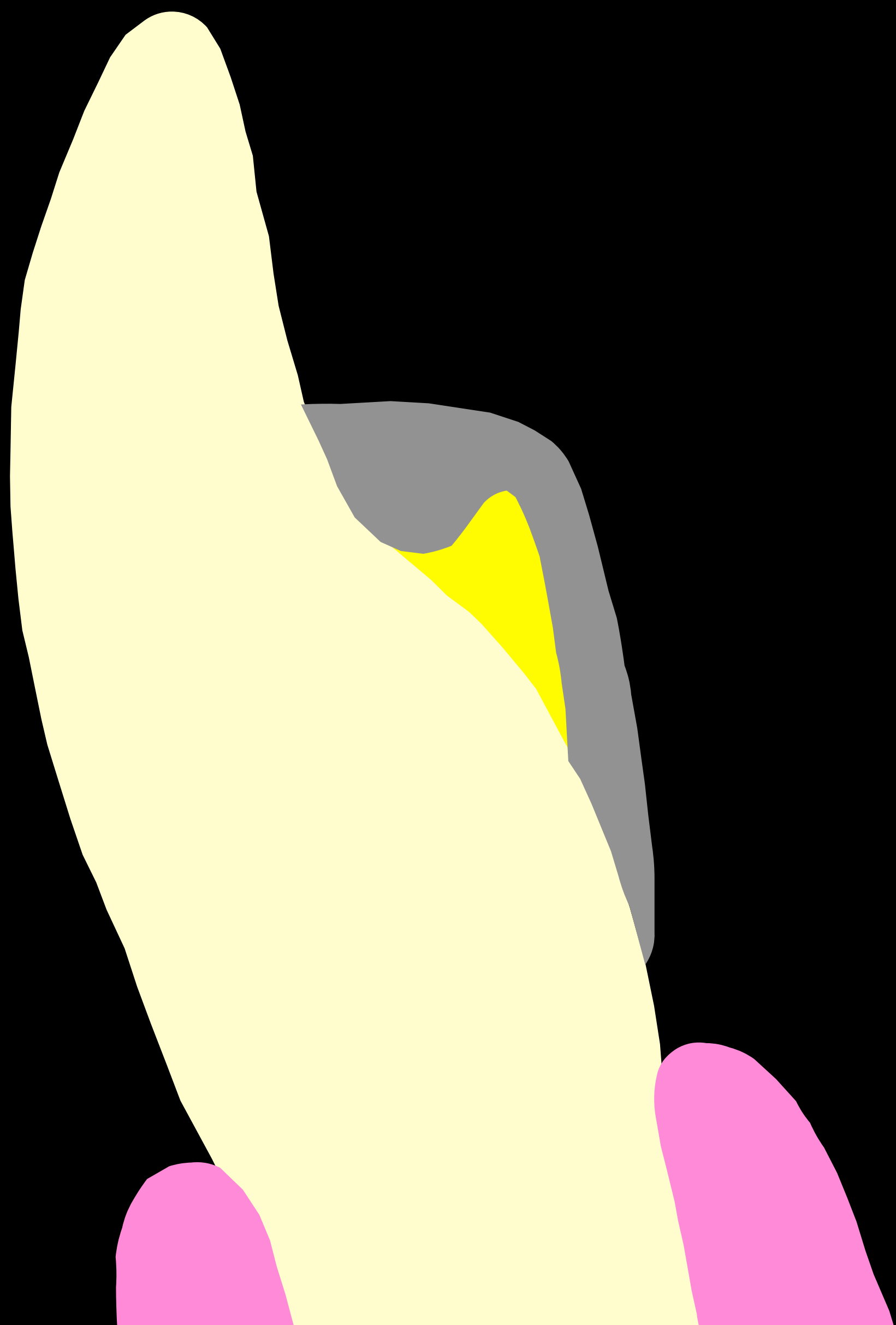




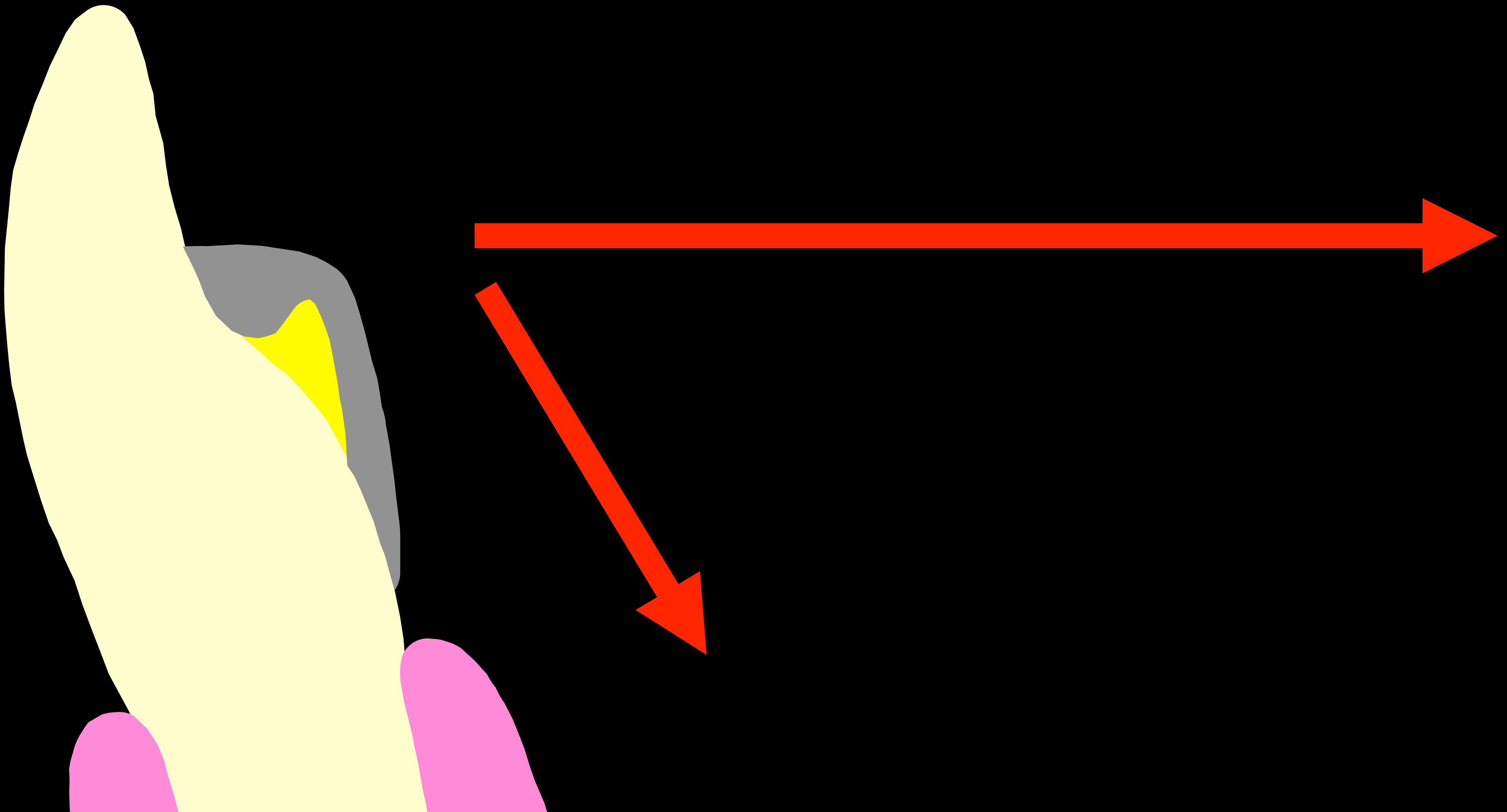




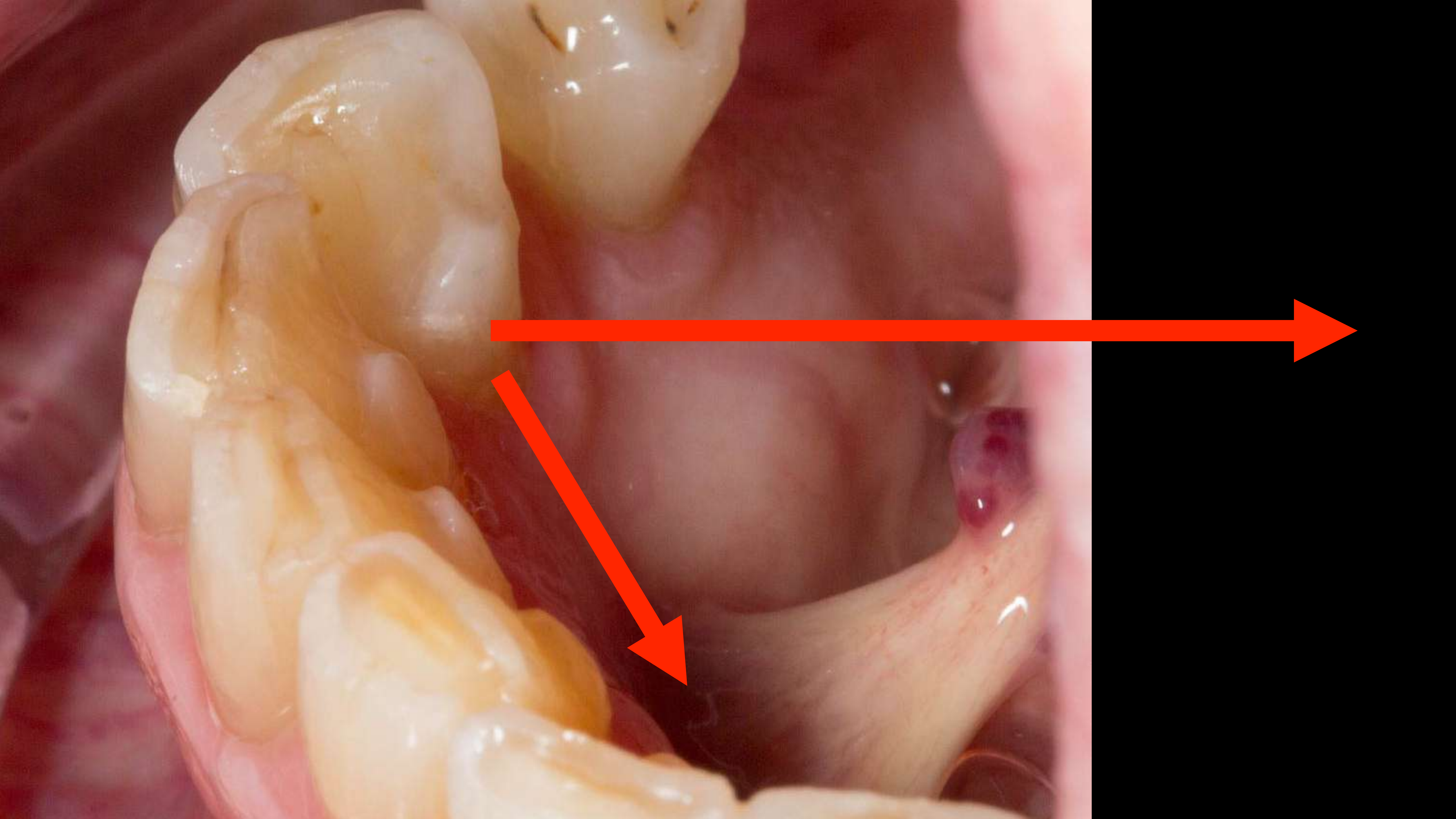




















Thank you!



# FINLAY SUTTON

REMOVABLE PROSTHODONTICS EDUCATION

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MENTORSHIP

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CASE STUDIES

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## Complete denture construction manual by Finlay Sutton (Prosthodontist) with Rowan Garstang (Dental Technician)



This complete denture construction protocol is based on the guides published by the British Society of Prosthodontics in 1996. These are as relevant today as when they were first published. The guides can be obtained at: <https://www.bsprosthodontics.org/184.aspx?PID=1&PID2=1&PID3=1&PID4=1&PID5=1&PID6=1&PID7=1&PID8=1&PID9=1&PID10=1&PID11=1&PID12=1&PID13=1&PID14=1&PID15=1&PID16=1&PID17=1&PID18=1&PID19=1&PID20=1&PID21=1&PID22=1&PID23=1&PID24=1&PID25=1&PID26=1&PID27=1&PID28=1&PID29=1&PID30=1&PID31=1&PID32=1&PID33=1&PID34=1&PID35=1&PID36=1&PID37=1&PID38=1&PID39=1&PID40=1&PID41=1&PID42=1&PID43=1&PID44=1&PID45=1&PID46=1&PID47=1&PID48=1&PID49=1&PID50=1&PID51=1&PID52=1&PID53=1&PID54=1&PID55=1&PID56=1&PID57=1&PID58=1&PID59=1&PID60=1&PID61=1&PID62=1&PID63=1&PID64=1&PID65=1&PID66=1&PID67=1&PID68=1&PID69=1&PID70=1&PID71=1&PID72=1&PID73=1&PID74=1&PID75=1&PID76=1&PID77=1&PID78=1&PID79=1&PID80=1&PID81=1&PID82=1&PID83=1&PID84=1&PID85=1&PID86=1&PID87=1&PID88=1&PID89=1&PID90=1&PID91=1&PID92=1&PID93=1&PID94=1&PID95=1&PID96=1&PID97=1&PID98=1&PID99=1&PID100=1> It is relevant to refer to these Guides to Standards in Prosthetic Dentistry as well as these instructions. We attempt to give the patient "prosthodontic privacy". A phrase created by Dr John Bedford, whereby only the patient and treating prosthodontic team know that the patient has prosthetic teeth.

### Removable prosthodontics is not easy

Removable prosthodontics is not easy and takes effort and graft to get good at it. Like anything in life that's worth doing – it is hard, but it's definitely worth the effort.

### The most important factor in delivering successful dentures

Technical factors are extremely important but are not the most important factor in delivering successful dentures. The patient's education and understanding of their role is the single most important factor in the success of their dentures.

Finlay Sutton and Rowan Garstang 2018

BDJ Aesthetic Dentistry Series | **VERSATILE CPO PAPERS** | PRACTICE

## Aesthetic possibilities in removable prosthodontics.

### Part 1: the aesthetic spectrum from perfect to personal

J. N. Bedford<sup>1</sup> and A. F. Sutton<sup>2\*</sup>

In brief		
The importance of the denture when it is viewed and perceived.	The importance of good not natural dentures between the patient and dental team, with the patient as the focus.	Why should we make dentures look like natural teeth?

Patients requiring dentures are getting older and as a result can be difficult to treat owing to various co-morbidities. This series of papers presents an overview of the processes involved in making removable dentures which the patient considers to be functionally and aesthetically successful. We hope not only to provide technical suggestions but also to address the issue of the clinician, technician and dental nurse's relationships with the dentally declined patient. It is increasingly clear from defence organisation reports that this has a decisive effect on the success of the fundamentally difficult enterprise. The only branch of dentistry in which you are trying to attach something to nothing (Robert Aichele). It seems best to conduct the planning and the treatment itself as a co-production – the patient assuming responsibility for choosing between the treatment options offered and playing the leading role in making aesthetic decisions. Distinctions are drawn between the skilled whilst-than-while, 'holistic-in-particular', attention-seeking denture at one extreme, and the highly personalised, discreet and naturalistic denture at the other. Reproducing nature in this way is time consuming and therefore expensive, but many dentures suffer from it as good value. Methods for creating the latter, which through its very normality switches off the local observer's attention, are explained in detail in papers two and three of this series. These papers are designed to help clinicians and technicians involved in providing removable prosthodontics improve the appearance of their dentures and increase their patients' aesthetic satisfaction. They are not scientific articles in the Pappapan sense of advancing theories which are capable of being falsified. Instead, they are an amalgamation of 72 years of combined experience with removable dental prostheses. We have found this branch of dentistry immensely interesting and fulfilling. It is a pity we had the satisfaction of seeing our patients' lives changed for the better.

### Introduction

*'Of course, dentures are essentially social appliances.' Per-Olof Gahrn.'*

**The predicament of the denture patient**  
When approaching the subject of dental prostheses for patients for whom fixed restorations are not a practical or even a best long option, the authors believe that it is important to consider the life circumstances of people who have lost many or all their natural teeth. This is not only because of conventional concerns advocating holistic dentistry – 'treat the whole patient, not just the mouth' – but also because the day-to-day experiences of people who wear complete dentures (or nearly complete partial dentures) are radically different from those of

our dentate patients. Although denture patients may be concerned about the appearance of their natural teeth, some being that their teeth are too irregular, too dark, too worn down, have unwanted discolours, etc., at least they still have their own teeth. In contrast, those obliged to wear dentures have often been subjected to more anxiety-producing, life-contrasting and potentially humiliating experiences than dentate patients.

People, deprived of all or most of their natural teeth, because of dentistry or the lack of it, often feel guilty. They feel that they have let one of God's virtues and it was 'their own fault' (which is often not the case). To add to this symbolic loss and feeling of failure, denture wearers may live in constant fear of a variety of practical scenarios: that their denture could be seen to move in their mouth while speaking or eating, or worse still get knocked out of it by a collision in a public place; that it may fracture; that it may get soaked while they are in hospital (especially when asked to remove it for an operation requiring a general anaesthetic), or lost while on holiday, swimming, etc.

They often live with constant concern of being degraded by it, or they think it looks artificial. Many denture wearers also suffer chronic discomfort, loss of biting and chewing power, leading to nutritional concerns of food and the need to turn down invitation to restaurants and especially to meals at other people's homes, where they cannot choose 'safe' food. These denture wearers can be called denture sufferers to distinguish them from the many who manage to cope. Many complete denture sufferers find isolation with their sexual partners, their mouth becoming effectively a 'no go area'. Such common problems may be additional to any aesthetic shortcomings which they feel their artificial teeth and gums display.

The reason for not mentioning these other problems here is that dentists who do not regularly treat partly or totally edentulous people may be unaware of the short depths to which denture sufferers can sink on, not recognising the jubilee heights to which they can be raised again by being provided with teeth which are comfortable, stable, permit satisfactory speech and mastication,

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BDJ Aesthetic Dentistry Series | **VERSATILE CPO PAPERS** | PRACTICE

## Aesthetic possibilities in removable prosthodontics.

### Part 2: start with the face not the teeth when rehearsing lip support and tooth positions

J. N. Bedford<sup>1</sup> and A. F. Sutton<sup>2\*</sup>

In brief		
Describe impression taking in maxillary dentures, stability and soft tissue support by managing large frenulae.	Describe shaping the wax occlusal rim into its preshape appropriate to support and reduce tooth pressure.	Describe the steps and sequence of denture, going between aesthetics.

Even dentures exhibiting superb aesthetics are of no use if they visibly move during speech and social intercourse. In this, the second paper of three on removable denture aesthetics, we describe impression making and shaping the wax occlusal rim. Not only are the impressions important for producing dentures with maximum retention, stability and support, but their extensions and the thickness of their borders have a decisive influence on lip support and profile. This article shows how the contours of the definitive impressions and the wax rims are developed so as to prescribe the overall form of the replacement gums and teeth. Properly trimmed rims are in essence an early three-dimensional rehearsal, an opportunity for developing the patient's preferred lip support and natural positioning of the denture teeth at subsequent stages. They can also give an early indication of what speech will be like with the new dentures. Without this 3D clinical information, laboratory technicians have to guess where to put the teeth and have little option but to fall back on the stereotypes of their textbook training.

### Denture construction

*'Of course, dentures are essentially social appliances.' Per-Olof Gahrn.'*

It is outside the scope of these articles to provide a step-by-step guide to state-of-the-art complete denture construction. However, producing complete dentures which look wonderful is pointless if they are unworkable owing to poor fit and function. To have a chance of working well in the physical sense, dentures must have sufficient stability for the patient not to be constantly reminded of their presence. And for that dentures must rely on their fitting surfaces, polished surfaces and occlusal surfaces being optimally shaped and positioned for each individual mouth.

Traditionally the *altered wax impression* process is thought of only as that which defines the denture bearing area, that which supports and retains 'the fit surface' of the denture. However, it is also possible to make simultaneous or consecutive impressions of the cheeks, lips and tongue as they move naturally when in contact with the superstructures of the denture (that is, the gums and the buccal and lingual surfaces of the teeth). We call the *triple wax version* of this 'the French impression', because we learnt it from from a gifted French prosthodontist, Hubert Aichele. It is also known as a *photographic impression*.

### Denture retention and aesthetics

The first and most obvious connection between retention and aesthetics is that any movement of a denture which is visible to an onlooker

amounts to an aesthetic disaster as well as a potentially humiliating social experience. This is what the wearers of dentures with adequate retention usually fear most.

Denture retention has a second relevance to appearance: when the dentures are well retained, the visible anterior teeth may be placed in any position which is attractive and appropriate (personal) for the individual. Deep overbites and large overjets present no problem. This opens up the aesthetic possibilities for the prosthodontic team and allows the denture patient to have virtually any dental appearance he or she desires. And this is true from the dental team, time and cost permitting, from the constraints of denture type (the ridge) denture set-ups and the classic 'false teeth' appearance.

Without access to the stabilising effects of conventional dentures, natural or implanted, the retention of a conventional complete denture (in the presence of adequate ridges) will depend mainly upon the accuracy of its fit in the soft tissues. And this in turn will depend on the quality of the primary and secondary impressions.

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BDJ Aesthetic Dentistry Series | **VERSATILE CPO PAPERS** | PRACTICE

## Aesthetic possibilities in removable prosthodontics.

### Part 3: Photometric tooth selection, tooth setting, try-in, fitting, reviewing and trouble-shooting

J. N. Bedford<sup>1</sup> and A. F. Sutton<sup>2\*</sup>

Key points			
Perfect reproduction – making dentures look like natural teeth and gums.	Being true with tooth position, colour, shape and shape of natural teeth using photometric selection and assessment.	Perfect and denture making in the dental office – the complete denture 'try-in'.	Stability of the denture and review stages of complete denture processes.

This final article in a series of three on producing complete dentures which the patient considers attractive, describes selecting the denture teeth, setting the front teeth at the chairside, the try-in visit, processing, fitting and reviewing the dentures. The role of the patient as captain of the ship, the dental nurse as the patient's support and liaison officer, and the clinician as the first technical officer is outlined. The use of immediate replay video technology in allowing a patient to see what the trial denture really looks like is described. It is vital that the patient is completely happy with its appearance in every detail before denture is finished. Dealing with post-fitting aesthetic problems is considered.

### The materials of denture teeth

*'Of course, dentures are essentially social appliances.' Per-Olof Gahrn.'*

**Porcelain teeth vs teeth of various resins**  
Though some practitioners prefer to use porcelain teeth, the majority of dentures are made with resin teeth. The principal reasons for this are: 1) that resin teeth are standard in most dental schools and colleges, and 2) that porcelain teeth have to be mechanically retained in denture base materials, and their retention is dependent on the quality of the denture base material. They are usually more expensive, too, since various stages of their manufacturing have not yet been automated and have to be done by hand. Any post-purchase surface characterisation, such as staining, crack lines, etc. requires the use of a porcelain furnace. Resin dentures have immediate access to such firing kilns, which makes the addition and removal of characterisations much easier for the patient to control.

Initially, the *poly-methyl methacrylate* (PMMA) resin used to make denture teeth were relatively soft and subject to rapid attrition and abrasion. However, improvements in chemistry and manufacturing have been continuous and today's resin teeth are harder and more stain resistant than before. Composite resins are used in some makes to improve wear resistance especially of posterior teeth, though these materials are more prone to staining and being chipped. Also, because of their filler particles, composite resins are also less translucent, which has a negative influence when pronounced incisal edge translucency is required in the outer enamel layer. Composite is therefore more useful in posterior teeth.

### Choosing denture teeth for complete dentures

**Anterior teeth**  
When a dentist extracts someone's front teeth and shows them in the hazardous waste bin, a small procedure, precious evidence is being thoughtlessly disposed of. These teeth would have become a great help in the selection of denture teeth for any future dentures. They are not useful for shade selection because teeth undergo marked colour changes as they dry out, but in every other respect – size, shape and surface detail – they cannot be improved on as records of the natural dentition; they were the natural dentition. We therefore advocate that dental practitioners wash extracted teeth, pack them discreetly in some suitable small container and offer them to the patient to keep for reference as new dentures are made in the years to come. No doubt some patients will find the idea distasteful and decline the offer, but many patients will see the good sense of not simply throwing away these valuable personal

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