KVM

The Lips

45 Injection Techniques for Esthetic Lip Treatment

Regine Reymond
Christian Köhler

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Authors' addresses:
Regine Reymond
Urs Graf-Strasse 1
4052 Basel, Switzerland
hello@regine-reymond.ch
www.regine-reymond.ch
www.easinject.ch

Dr. med. Christian Köhler
PREVENTION-CENTER AG
UTOSCHLOSS
Utoquai 31
8008 Zürich, Switzerland
c.koehler@prevention-center.ch
www.prevention-center.com

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About the authors

Regine Reymond, alternative practitioner, pharmaceutical representative, and co-owner of the company "easinject" is an expert in the area of esthetic lip treatment with hyaluronic acid (fillers). Based on her professional activities, she is able to demonstrate almost 20 years of expertise in the use of minimally invasive injection techniques. Having partially completed a university course in medicine, she worked as a marketing manager for international pharmaceutical companies for several years; since then, she has either organized or personally led more than 150 workshops, seminars, and symposia on the topic of filler techniques.

Dr. med. Christian Köhler is an expert in esthetic surgery, non-surgical techniques, and esthetic laser treatments. For more than 10 years, he has been heading up the Prevention Center in Zürich, Zug and Schaan, Switzerland. His specialist areas include procedures such as breast augmentation, eyelid tightening, and facelifts. Dr. Köhler has more than 18 years of hands-on experience in general, vascular, reconstructive, and plastic surgery. To date, he has also performed more than 50,000 non-surgical treatments with botulinum toxin and fillers.

Dear colleagues

The perfect, beautifully shaped mouth, with its soft fullness and healthy blush, really does exist: it is the mouth of a child. The childish mouth with its pouting lips has a direct, disarming effect on adults, triggering a protective instinct. In the adult face, this type of mouth takes on the attribute of sensuality – which is the desired effect in any lip treatment using minimally invasive procedures.

A beautiful mouth has a rather magical quality. It can have a positive effect on an individual's appearance and charisma, even where the proportions of the face are not entirely harmonious. Nevertheless, every mouth has its own natural shape, and this shape is subjected to highly individual mimic activity. With increasing age, this mimic activity influences not only the expression of the lips, but also the expression of the face as a whole, so that the emotional traces of a lifetime can supposedly be read on a person's face.

Since the lips are in constant, three-dimensional movement, which changes their shape and thereby affects overall facial expression, it is a huge challenge to shape or augment the lips with filler injections. Mistakes can be made here, and these become obvious even if they involve only the tiniest deviations or areas of asymmetry. More than one injection technique will be needed to reshape the lips. Even if we can say exactly how much of any particular material needs to be placed at a specific location on the lip, we can be certain that this will produce different results in each individual. There is no universal treatment regimen. Instead, we have multiple technical options at our disposal, and their use must always be preceded by a profound analysis and good communication with the patient. The better the interaction of these factors, the more likely a successful result will be achieved.

During my early professional days in esthetic medicine in 2001, the lips were injected using two techniques: the contours were always treated first, followed by subtle linear filling starting from the mouth corners. Plumped lips were not in fashion, and imperfections were not yet being corrected. It is incredible to see how rapidly these techniques have been evolving over the years, and how this trend is now generating an enormous demand for treatment. However, this also demonstrates the vital and changing nature of esthetic work, and shows that a dedicated and experienced therapist can never stop adopting innovations or learning and perfecting new refinements.

Injection treatment of the lips remains a challenge, even for highly experienced therapists, since the mouth does not tolerate errors. Since lips are so well-perfused, they swell quickly, which can cause complications. The patient's wishes represent an additional challenge of lip treatment, and one which must never be underestimated. Unfortunately, what a patient wants is often shaped by unrealistic expectations or extreme fashion trends. As a therapist, you may end up with a moral conflict and a dissatisfied patient, detracting from the enjoyment you derive from your work.

Some two years ago, the idea occurred to document the knowledge I had amassed over the past 20 years in workshops, international training events, conferences, and online professional development courses, with the aim of sharing this knowledge with my colleagues. Numerous conversations with eminent authorities of injection treatment, extensive research, the active support of my friends and family, and the motivation provided by the publisher, KVM, encouraged me to translate my idea into action. I have neither invented nor changed the techniques presented here. The knowledge comes from various trainers, educators, speakers, and doctors working in esthetic medicine, and shows different approaches and directions. I have collected and categorized all the techniques presented in this book for quality and feasibility, optimizing some of them, and have done so in constant dialogue and close cooperation with my co-author, Dr. Christian Köhler. The aim was to produce a practical manual about injection techniques for use in the lip region, to be applied as required or according to preference.

Foreword

The various problem-solving approaches form the focus of this book, which also strives to optimize the finer points of injecting the lips with fillers; all this is presented under the aspect of realistic working practices. In this respect, we have created a matrix that can be used as a guide to match up the indications most commonly occurring at esthetic practices to the recommended techniques. However, this does not mean that therapists should reduce their skills to this matrix – on the contrary, the many different approaches shown here will allow therapists to broaden their own ranges and creatively elaborate the finer points of the treatment, perhaps even developing some of the techniques further. The recommendations on filler volumes to be injected are based on average practice-based figures in Central Europe. These values will vary according to regional beauty preferences or trends.

In the main, we have refrained from the use of before/after images, since these can easily lead to expectations that may not necessarily relate to the individual face being treated.

Dr. Christian Köhler, MD has demonstrated the techniques on models in video recordings. These are available to you as additional visual aids via the QR codes included in the book, which are a valuable add-on to the information on the various injection techniques described in the text. I would like to extend my warm thanks to Dr. Köhler and his team for their wonderful, highly positive collaboration as well as for the superb quality of the injection procedures depicted.

A further word on the 45 filler injection techniques that are presented here and form the core of this book: for each of these techniques, the images and videos of the lip treatment procedure are supplemented with details of the technique, the direction of needle insertion, skin layer, material and volume, type of injection needle, and anesthesia. All of these particulars are in line with our recommendations and experience-based values, but they should not be seen as requirements set in stone. In addition, each technique includes a "Treatment protocol" box with a key points summary of the technique as well as an "Important notes" box, which also lists the possible and undesirable side effects for each treatment technique. These may occur at varying severity in most lip injection procedures and need to be borne in mind: the principal side effects include asymmetries, inflammation, hematomas, nodules, necrosis, reddening, pain, swellings, and overcorrection. These two text boxes, which inherently contain repetitions, should provide a useful reminder of all the key aspects of the lip treatment for each individual technique.

This book is aimed at medical doctors and licensed therapists with experience of filler injection treatment. The endorsement and use of the demonstrated techniques remain the responsibility of the individual therapist conducting the treatment. It is important to remember that each lip is unique, and that no hard and fast formulae exist: the use of any of the presented techniques must be preceded by an assessment and by the therapist's decision, made in agreement with the patient, regarding when and to what extent a particular technique can be used in that patient.

Acknowledgments

Many people have provided me with their active and passive support in the form of their studies and publications. In this respect, I would like to extend particular thanks to Dr. Tom van Eijk, Dr. Daniel Brusco MD, Dr. Niklas Iblher MD, Prof. Vincenzo Penna MD, Prof. Björn G. Stark, Dr. Petra Becker-Wegerich MD, Dr. Philippe Snozzi MD, Dr. James Bouzoukis, Dr. Phillip Chang, Dr. Anil Rajani, Dr. Polsak Worakrai, and Zita Hesse. My warm thanks also go to all of those who have given their kind permission to publish their images.

Particular credit needs to be given to the graphic representations in this book. With admirable patience, David Kühn from KVM has provided outstanding depictions of every detail. This has made it possible to illustrate the various points described in the book, making them clear and easy to understand. The photographic services of Martin Frick and the filming by Andreas Grabherr also provide vivid visualizations of descriptions given in the text, closing any remaining gaps in the written material. My warmest thanks go to them for doing this!

Last but not least, my thanks go to my dear husband, Dr. Jean François Reymond MD; with his clear head and constructive criticisms, he was a valuable though strict mentor, and helped me to make the procedures comprehensible even for less experienced therapists.

I wish my readers not only professional and practical gain, but also enjoyment in reading this volume. In addition, I hope it will stimulate you to question familiar and established practices and to try new ones, and thereby to advance your continued professional development. In doing so, you might have the same experience as I did, having discovered three additional, relevant techniques after the press deadline for this book. I look forward to your feedback. Should you be aware of any techniques that have won you over but are not described herein, I would be pleased to include these, once tried and tested, in the next edition.

Basel, October 2021
Regine Reymond

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The following abbreviations are used in this book:

Medical abbreviations

	Sharp needle
	Blunt cannula
▲	Viscous (HA material)
●	Soft (HA material)
Ala	Attachment point of the wing of the nose
AN	Tip of the nose (apex nasi)
B'	Soft tissue B-point (the deepest point of the labiomental fold)
BDDE	Butanediol diglycidyl ether
C	Cervical point (junction of the submental and neck contours, neck–throat junction)
Cm	Columella nasi (fleshy external end of the nasal septum)
CPM	Cohesive polydense matrix
DCLT	Dynamic cross-linking technology
DN	Dorsum nasi (bridge of the nose)
Gl	Glabella (skin of the forehead between the eyebrows)
HA	Hyaluronic acid
Li	Labiale inferius (foremost edge of the lower lip)
LL	Lower lip
Ls	Labiale superius (foremost edge of the upper lip)
Me'	Soft tissue menton (the most inferior point on the soft tissue of the chin)
N'	Soft tissue nasion
NASHA	Non-animal stabilized HA
Or'	Soft tissue orbitale
Pg'	Soft tissue pogonion
Ph	Philtrum
PL	Perioral zone of the lower lip
Pn	Pronasale
Por	Porion (external auditory meatus)
PU	Perioral zone of the upper lip
RHA	Resilient hyaluronic acid
SMART	Supreme monophasic and reticulated technology
SMAS	Superficial musculoaponeurotic system
Sn	Subnasale
St	Stomion (oral fissure when the lips are closed)
Trg	Tragus
Tri	Trichion (hairline)
TWN	Thin wall needle
UL	Upper lip
UTWN	Ultrathin wall needle

Editorial abbreviations

c.	Circa (approximately)
cf.	Confer/conferatur (compare with)
e.g.	Exempli gratia (for example)
et al.	Et alteri (and others)
etc.	Et cetera (and so on)
i.e.	Id est (that is)
f.	And the following page
ff.	And the following pages
Fig.	Figure
max.	Maximum
n.d.	No date
No.	Number
p/pp	Page/pages
Syn.	Synonym
Tab.	Table

Units of measurement

%	Percent
°	Degrees
G	Gauge
g	Grams
L	HA particle size for a thick material with lifting capacity
M	HA particle size for a material of medium thickness with lifting capacity
mg	Milligrams
ml	Milliliters
S	HA particle size for a material with weak lifting capacity
XL	HA size for a very thick material with strong lifting capacity
XS	HA particle size for a thin material with no lifting capacity

1 The Lips

1 The Lips

1.1 Beauty

Regardless of era or culture, the lips always play a key role as a feature of beauty. Full, mobile, well-perfused, moist red lips are associated with youthfulness, health, sensuality, and the sexual attractiveness that goes with them. A full mouth is generally seen as an ideal of beauty and attracts attention to itself – and this has been the case since time immemorial.

This begs the question of a neutral evaluation of lip beauty that is not dependent on fashion. A pertinent investigation was reported in the "JAMA Facial Plastic Surgery" study by the surgical team headed by Natalie Popenko (University of California, Irvine), in which USA researchers showed portraits of pale-skinned women to 580 subjects. Lip shape, the ratio of upper lip to lower lip (UL : LL), and the size of the lip surface relative to the lower third of the face were altered in these portraits. The UL : LL ratio of 1 : 2 was assessed as the most attractive, with the highest mean and highest proportion of "most attractive" placings, while the UL : LL ratio of 2 : 1 was rated as the least attractive.

However, it is particularly in the current age of selfies, taken by the million and posted on Instagram with a prominent pout, that extreme lip augmentation has gained in significance – regardless of whether this lip shape fits harmoniously into the face.

In the past two years, celebrities and influencers have also effected changes in the conventional features of lip beauty, so that a disproportionately enlarged upper lip with an altered shape is now seen as attractive. This can then often lead to an unnatural result: in some circles, having thick, "bee-stung" (or "dinghy") lips is equivalent to wearing certain designer brands.

Symmetry, or the balance between the lips and rest of the face, is deliberately ignored, causing conspicuous disruption in the harmony of the facial features: the artificial lips are put on show with pride and carried on the body like a work of art.

An association between lip shape and character is another aspect that is under discussion. This subject is less well researched, although there are many disputed, popular science interpretations of this (Bunte.de Redaktion magazine website 2018), e.g.:

- Harmonious lips convey calmness and serenity.
- Thin lips stand for grimness, lack of passion, single-mindedness, perseverance.
- Large lower lips stand for impulsiveness.
- Lopsided, crooked lips stand for a loving, trustworthy nature.

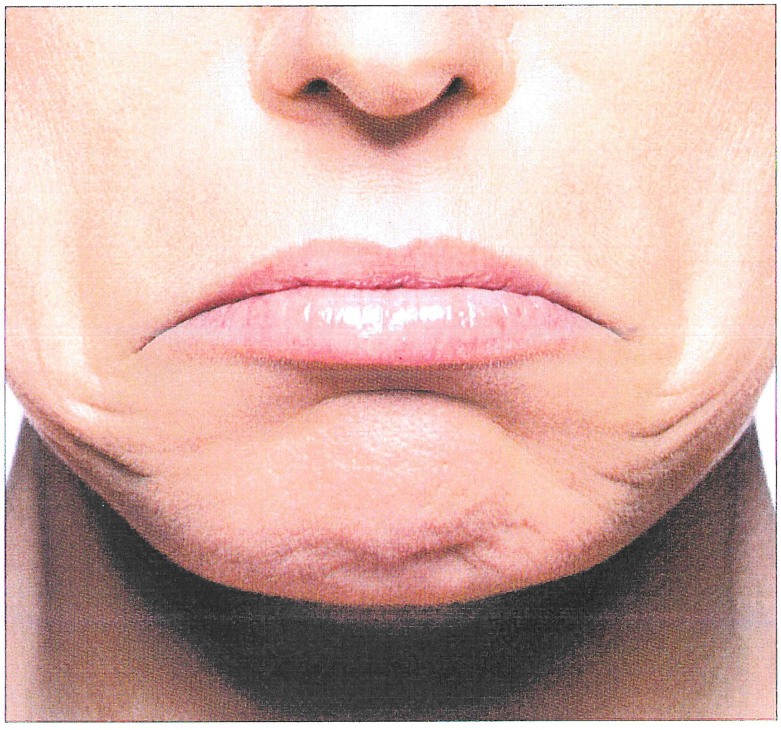


Fig. 1.1 Facial expressions show feelings that change the shape of the lips, creating visually identifiable emotions. A mouth with its corners pulled down is a display of sorrow or disgust.

However, the movements made when speaking and eating, the muscle tone of the lips, and the changes in shape caused by the facial muscles as an expression of feelings (→ Fig. 1.1), which can make a mouth beautiful or special but can also express a negative attitude, all exist independently of the anatomical structures and the genetically determined shape of the lips. These movements may be symmetric and harmonious in themselves, or asymmetric and crooked, lending a personal note to the overall appearance. Regardless of the shape of the lips when relaxed, these influences can make a pair of lips seem sensual, charismatic, erotic, pinched, disdainful, lascivious, etc. Inferences about an individual's character are made as a result of lip expression: this person has a labile mouth, an intelligent mouth, an idiotic mouth, an aggressive mouth, and so on.

1.2 Function

The lips have important functions far beyond their role as a feature of beauty. They are intended for food ingestion. Their musculature makes them very mobile so that they can hold onto food items and convey them into the mouth. Closing the lips produces an airtight seal, holding food and saliva inside the mouth and keeping out unwanted objects. This airtight seal is also important when taking in food by suction. In addition, lip closure and lip shape are of great significance when producing sounds (→ Fig. 1.2) by speaking, singing, whistling or playing wind instruments.

Since the lips contain numerous nerve endings, they comprise one of the most sensitive regions of the body. The thin skin of the lips feels pleasantly soft and reacts with enormous sensitivity to external stimuli such as temperature, touch, and pain. The lips act as an organ of touch for infants and have a highly sensitive function as an erogenous zone in sexuality, e.g. during kissing. Thus, beautiful lips can increase a person's sexual attractiveness.

1.3 Anatomy

The lips are the soft tissue folds formed in the lower, anterior part of the face, and they seal off the oral cavity against the outside world. They possess inherent mobility, and, with the cheeks (buccae), they form the vestibule of the mouth (vestibulum oris). The lips are embedded in the oral and chin region, forming its center (DocCheck Flexikon 2019). In this book, we have concentrated predominantly on this region, leaving out treatment of the nasolabial zone, as any complete treatment of that zone would also affect treatment of the upper half of the face. We had to draw a line here. We have also taken a selective approach in the anatomical depictions, and have refrained from describing regions that have no relevance to injection treatment in the lip area, such as the maxilla, even if these structures are of significance to the changes in appearance that occur during the aging process.

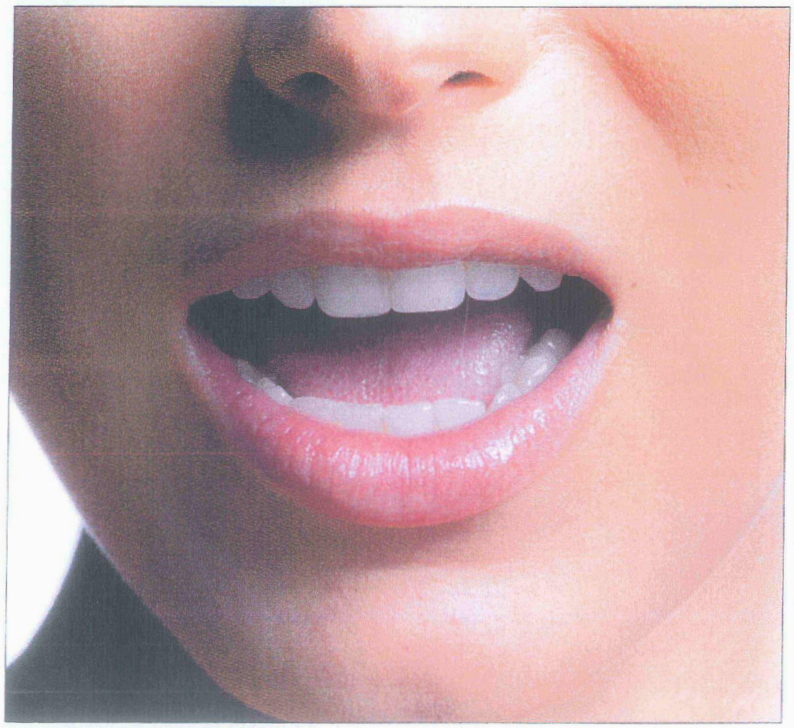


Fig. 1.2 An example of lip shape during singing.

1.3.1 Mouth region

The outer part of the mouth, i.e. the extraoral region, is distinct from the oral cavity. The section between the nose and aperture of the mouth is referred to as the upper lip, while the lower lip is the region from the aperture of the mouth to the labiomental fold. Thus, the vermillion is only one part of the lip.

Topographic Anatomy of the Mouth Region (→ Figs. 1.3–1.18)

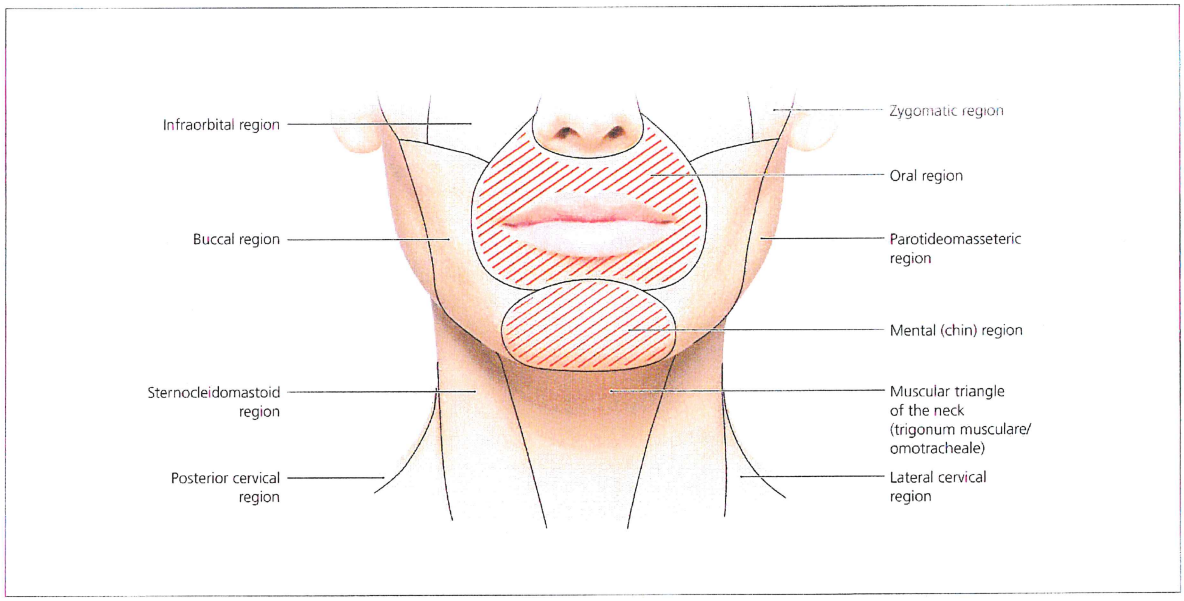


Fig. 1.3 Mouth region (oral and mental region), anterior view (hatched in red).

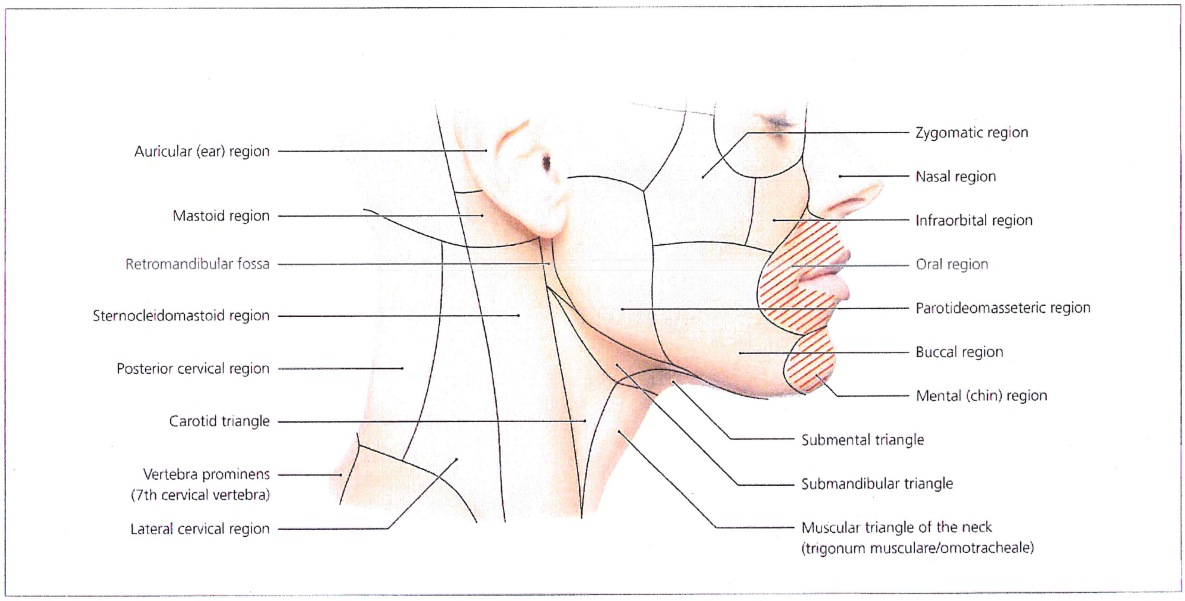


Fig. 1.4 Mouth region (oral and mental region), lateral view (hatched in red).

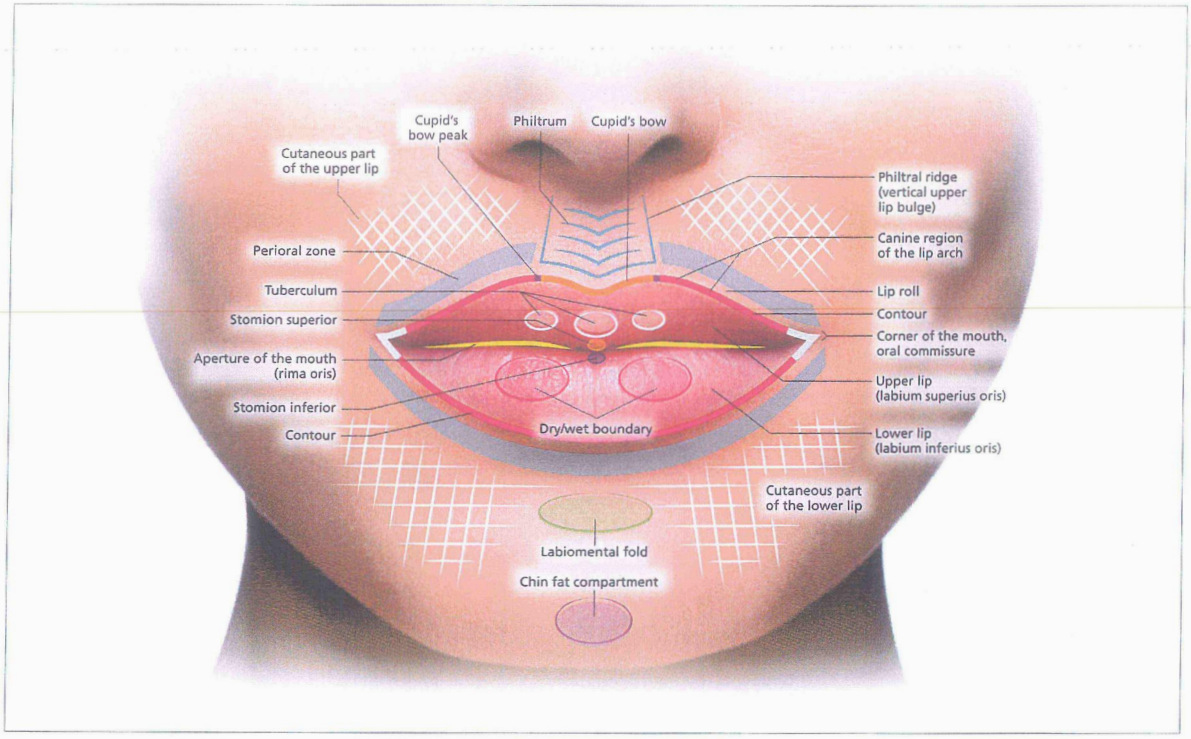


Fig. 1.5 Anatomical terms used to describe the outer lip region.

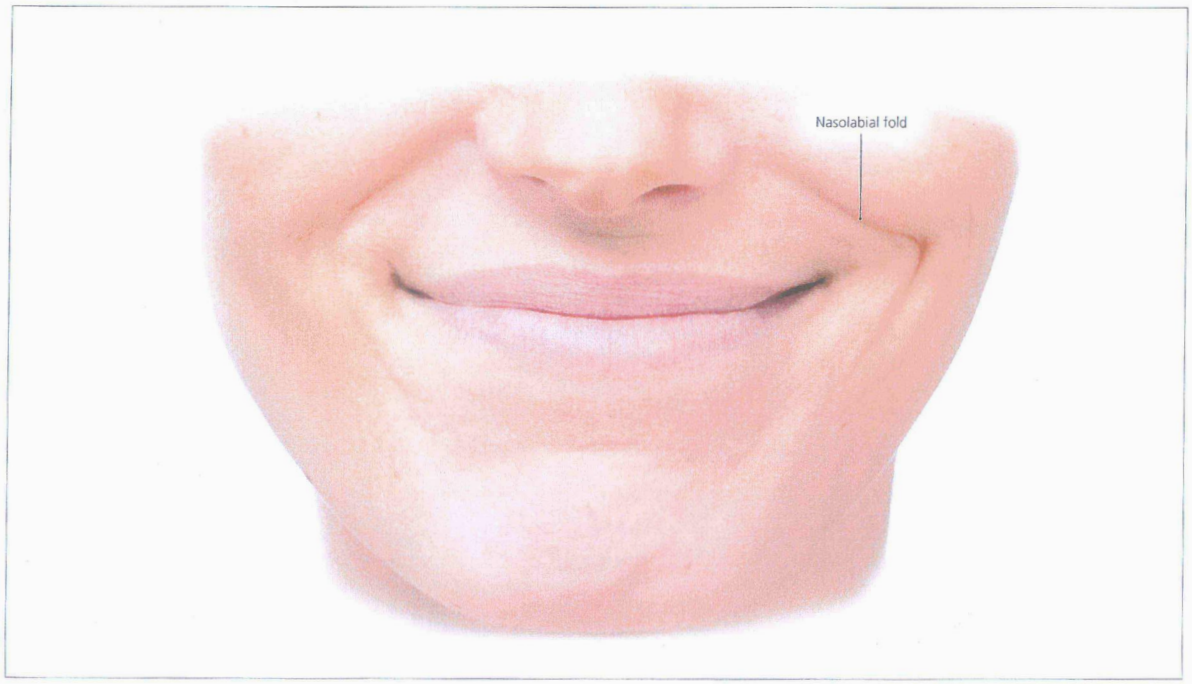
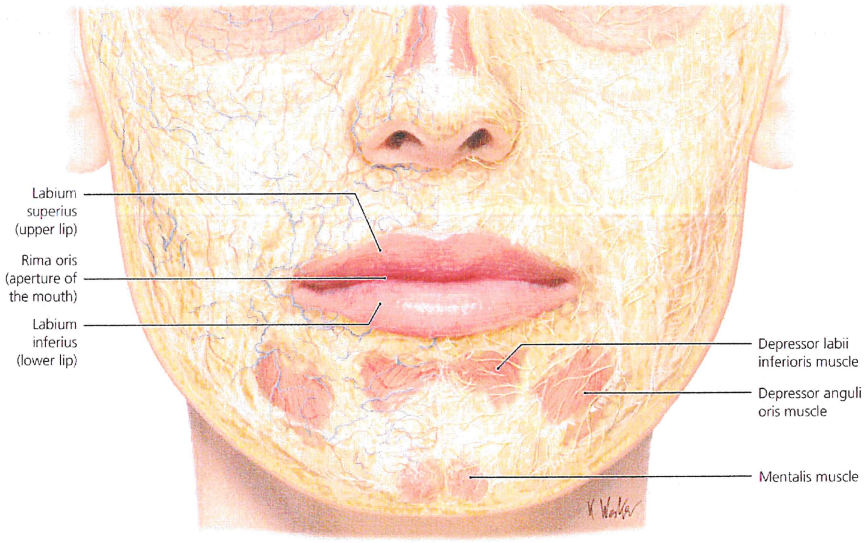
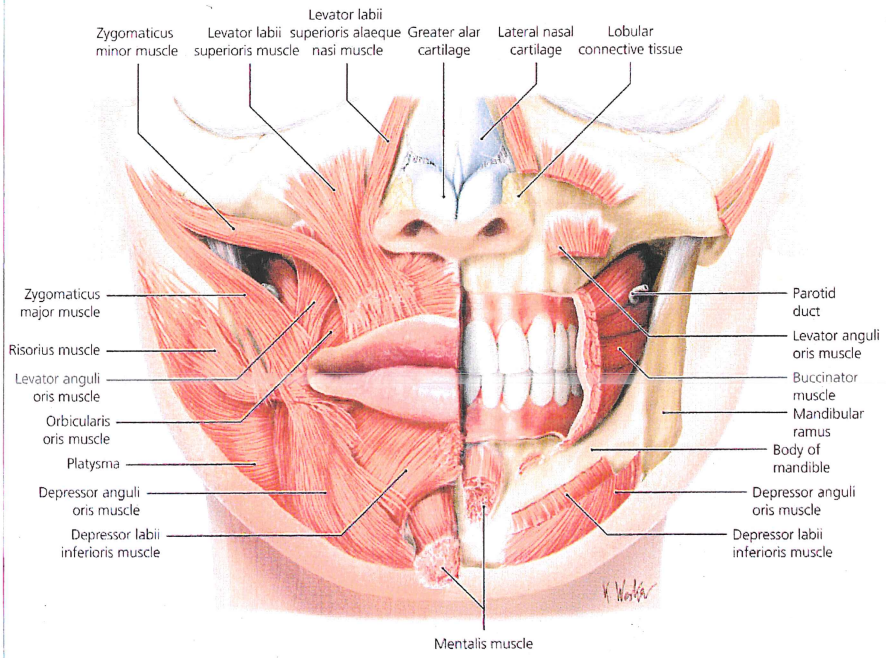


Fig. 1.6 The oral region is bounded on both sides by the nasolabial fold. In children and adolescents, this fold may be effaced when the face is at rest. However, it is always visible when a person smiles. It becomes permanent with increasing age; its prominence depends on the volume of cheek fat.



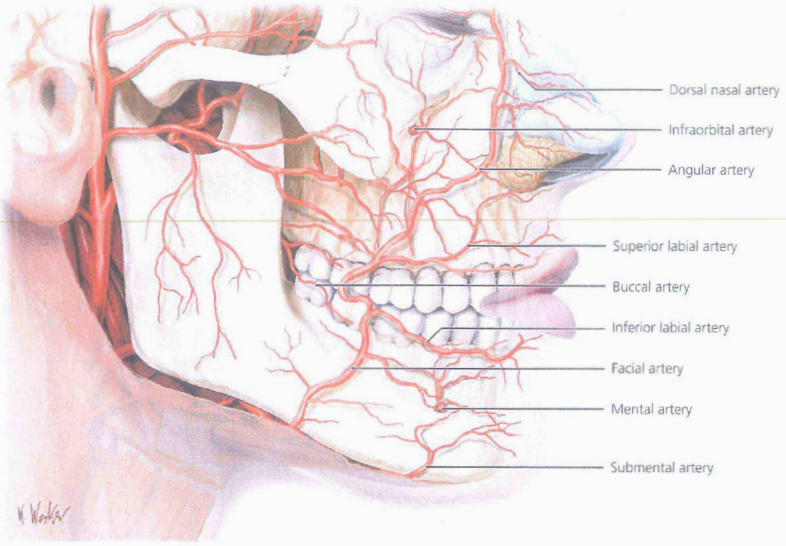
Subcutaneous fat distribution in the mouth region

Fig. 1.7 Distribution of subcutaneous fat (extensive yellowish-white structure) in the mouth region. In the lip region, the subcutaneous fat layer is comparatively thin.

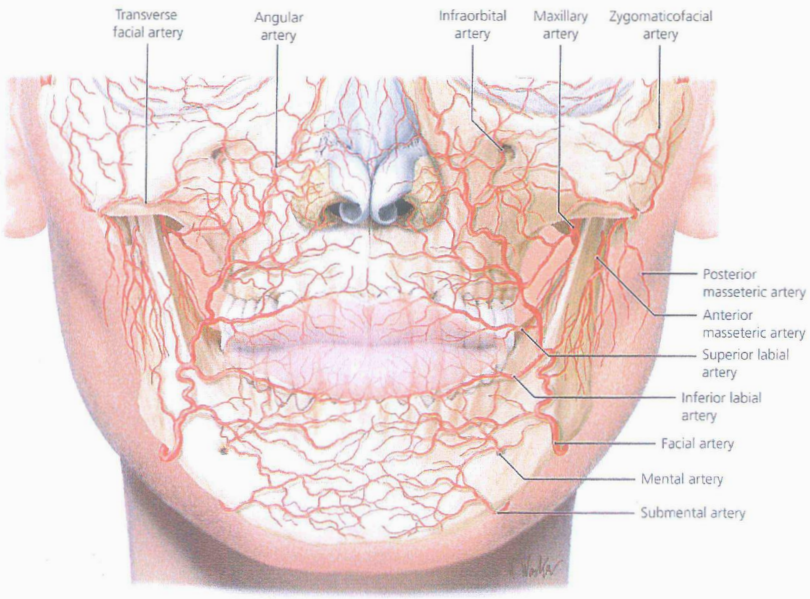


Musculature of the mouth region with the deeper sites and insertion points exposed
(in the right half of the image)

Fig. 1.8 The oral cavity is enclosed laterally by the buccinator muscle, which merges into the orbicularis oris muscle further anteriorly. Several individual muscles run toward the mouth at the side of the nose and are capable of lifting the upper lip in several directions, depending on the angle of insertion. Originating from the zygomatic arch, they show an oblique course. The risorius muscle and the platysma run horizontally. The lower lip is also reached by muscles that can pull it in all directions. This radial arrangement of the musculature is a key prerequisite for the impressive range of movements shown by the mouth. The junction of muscles at the corners of the mouth is referred to as the modiolus. Here, fibrous tissue holds the various muscle fibers together.



Arterial supply of the mouth region, lateral view

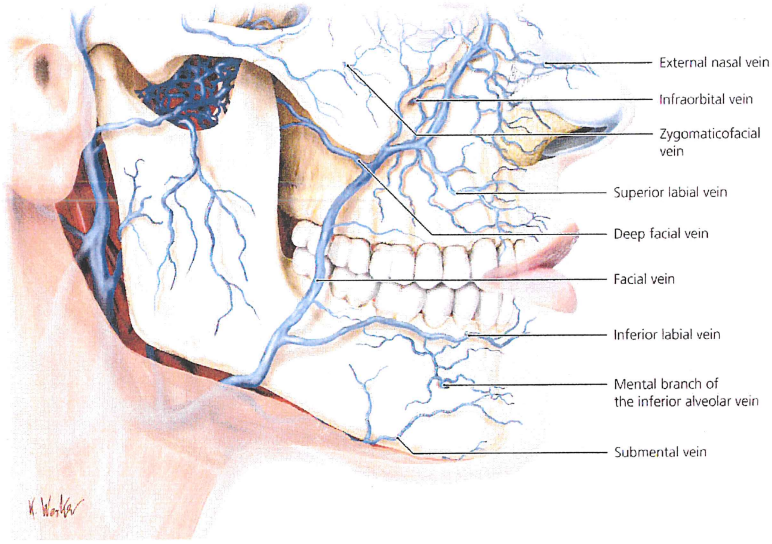


Arterial supply of the mouth region, anterior view

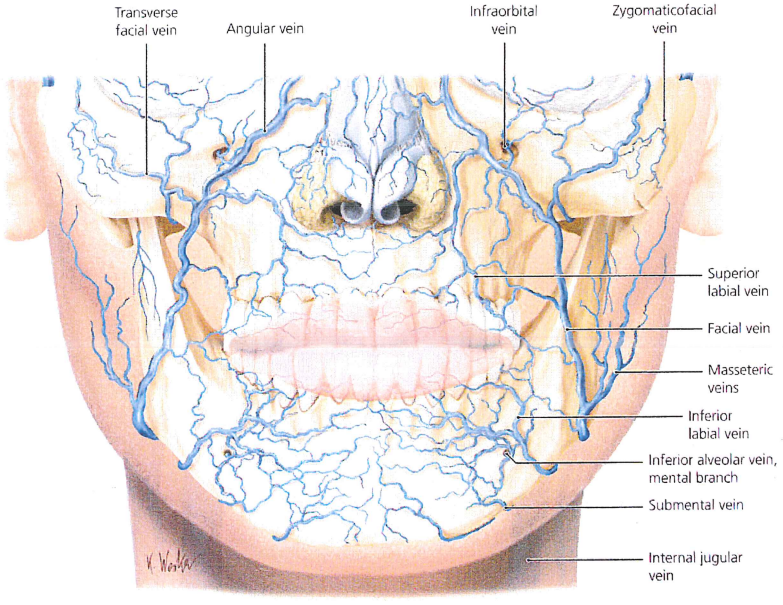
Fig. 1.9 The mouth region is supplied by two branches of the external carotid artery and one branch of the internal carotid artery: the facial artery originates from the external carotid artery and runs along the lower edge of the mandible to arrive at the oral commissure. Here, it sends out two branches, the inferior and superior labial arteries.

After continuing its course along the nose, it anastomoses with the dorsal nasal artery, which originates from the ophthalmic artery, that is, from the internal carotid artery. Originating from the external carotid artery, via the maxillary artery, the infraorbital artery not only exchanges anastomoses with the facial artery, but also independently supplies the cheek and lip region.

Another vessel that originates from the maxillary artery, and thus also from the external carotid artery, is the mental branch of the inferior alveolar artery, which runs below the mandible and supplies the lower lip and chin region. However, the chin region is also supplied by direct branches of the facial artery, i.e. the submental artery.



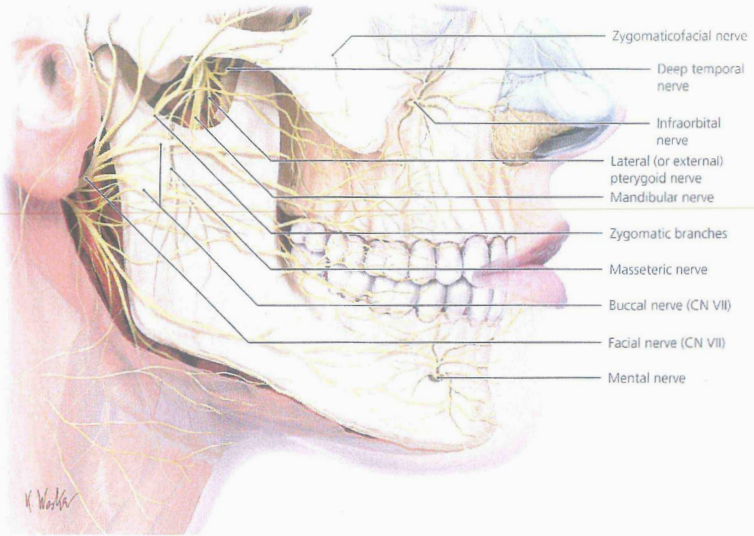
Venous drainage in the mouth region, lateral view



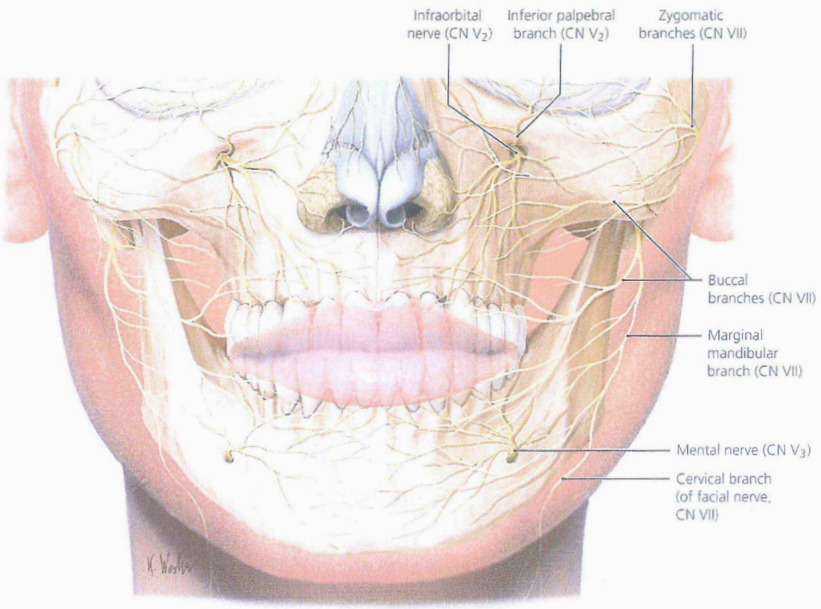
Venous drainage in the mouth region, anterior view

Fig. 1.10 The venous drainage from the cheek and lip region takes place mainly via the facial vein, and thus into the internal jugular vein.

However, venous blood also drains through the mental foramen into the inferior alveolar vein, which runs into the pterygoid plexus. The infraorbital vein also drains into the pterygoid plexus.

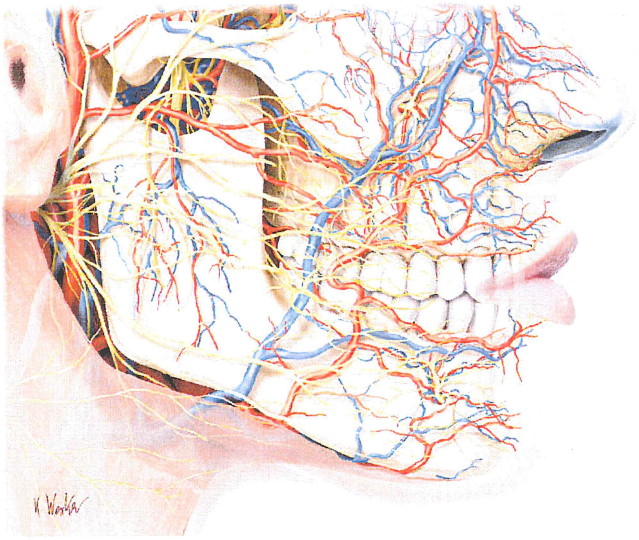


Innervation of the mouth region, lateral view

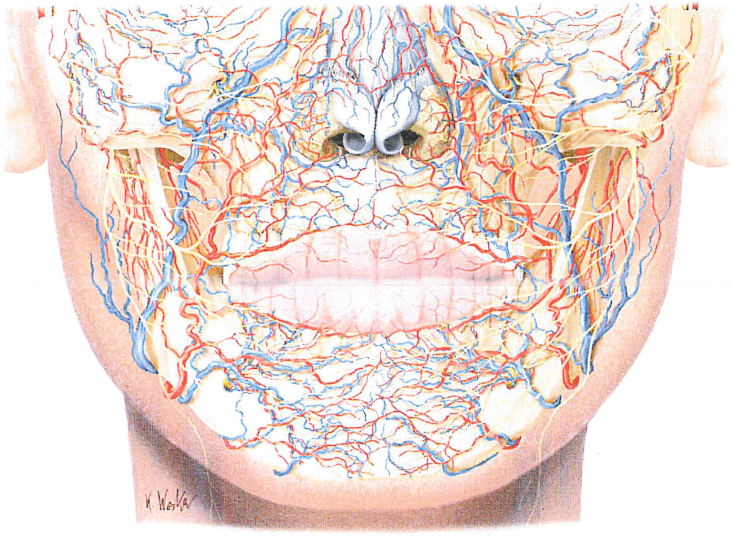


Innervation of the mouth region, anterior view

Fig. 1.11 The sensory innervation of the mouth region is provided by the infraorbital nerve and the mandibular nerve. The motor innervation of all the muscles of facial expression is provided by the facial nerve. The chewing muscles are innervated by the motor branch of the mandibular nerve.

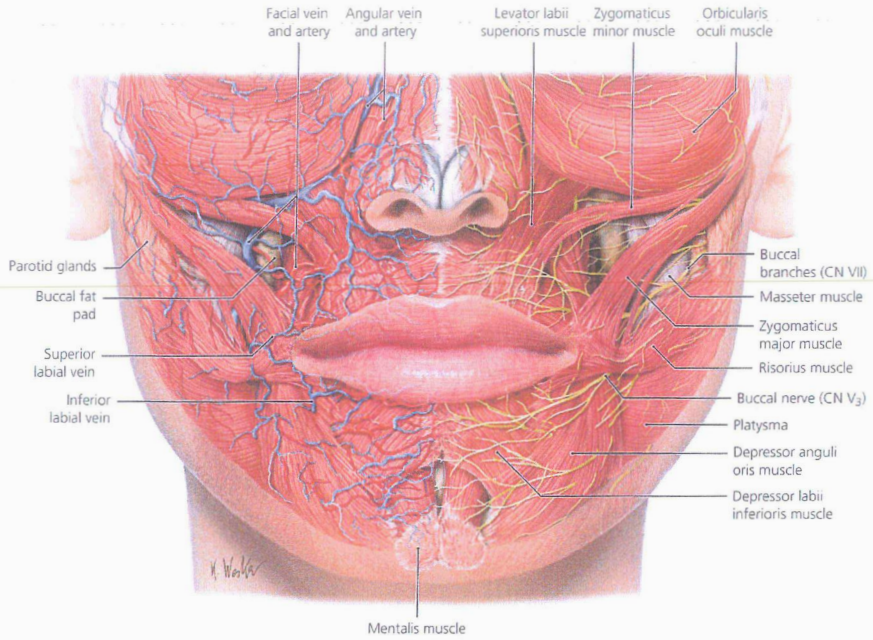


Network of blood vessels and nerves supplying the mouth region, lateral view



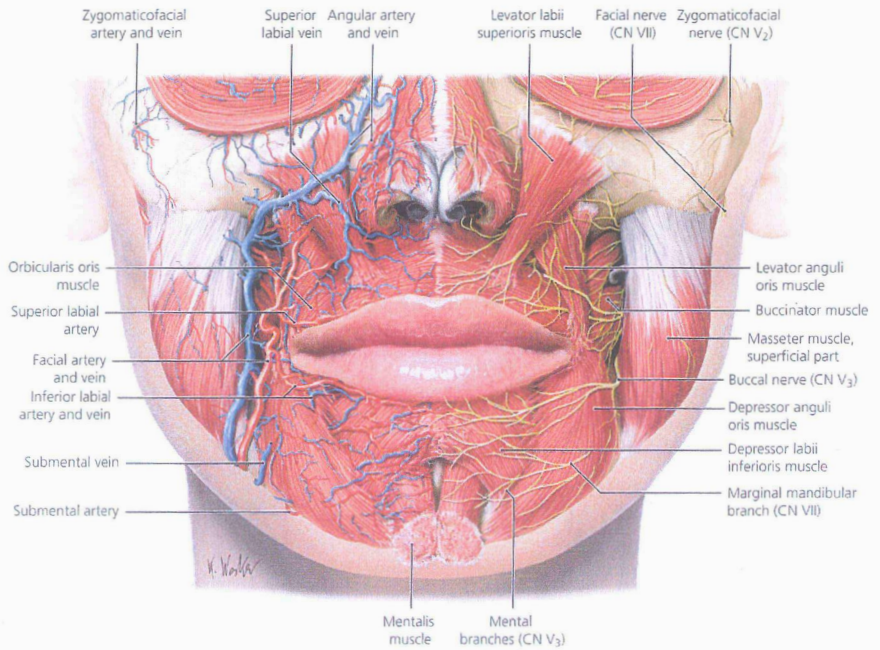
Network of blood vessels and nerves supplying the mouth region, anterior view

Fig. 1.12 Images depicting the network of blood vessels and nerves that serve the mouth region clearly show how intricately this area is perfused and innervated.



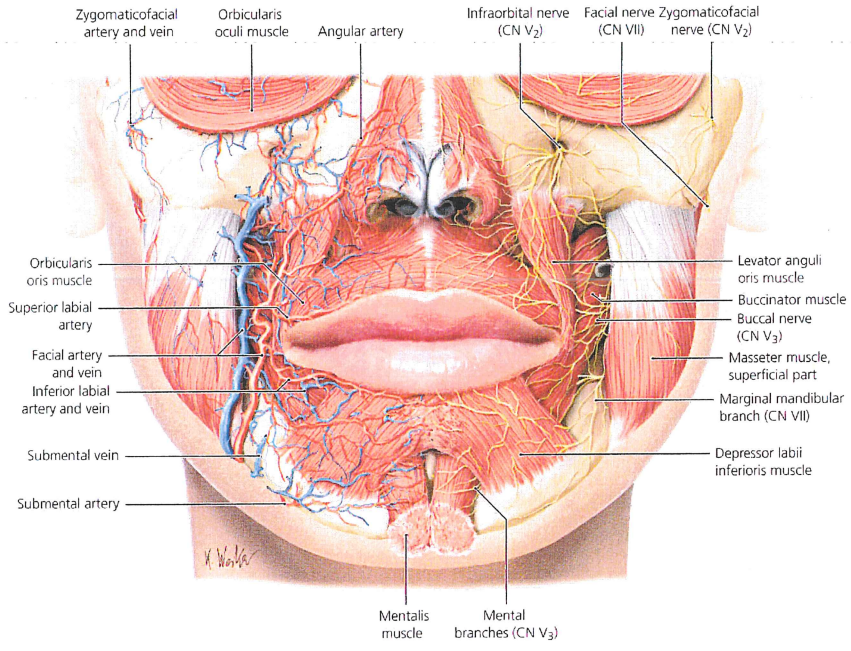
Musculature, vascular supply (left) **and innervation** (right) **in the mouth region, superficial layer**

Fig. 1.13 The mouth is surrounded by muscles of facial expression that run toward it from almost every direction. The central section of the lips is formed by the orbicularis oris muscle (see Fig. 1.15). The arteries in this superficially located muscle layer of the mouth region branch off from the facial artery, which sends out branches to the nose, the cheek, and both the upper and lower lip. The lower lip region is also supplied by the mental branch (see Fig. 1.15), which originates from the alveolar artery and emerges through the mental foramen. Venous blood from the superficial mouth region is drained via the facial vein, while all the muscles of facial expression are innervated by branches of the facial nerve. Motor innervation of the chewing muscles is provided by the motor root of the trigeminal nerve, which is distributed to the target areas via the mandibular nerve (see Fig. 1.11). Sensory innervation of the mouth region is provided by the trigeminal nerve.



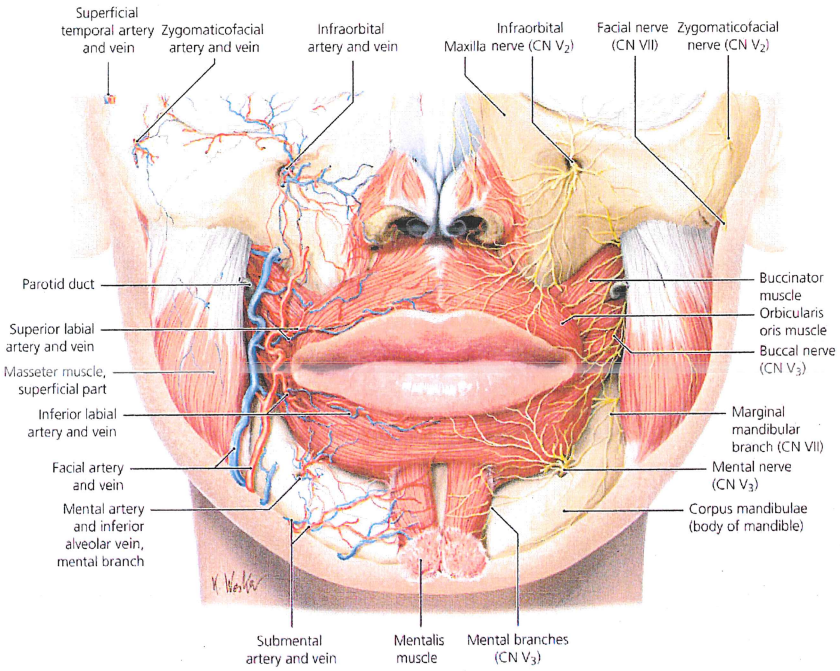
Musculature, vascular supply (left) **and innervation** (right) **in the mouth region, zygomaticus minor/major muscle, risorius muscle, and platysma removed**

Fig. 1.14 Removing the zygomaticus minor/major muscles, the risorius muscle, and the platysma exposes the entire lengths of the levator labii superioris muscle, the superficial part of the masseter muscle, and the levator anguli oris muscle, with visible origins and insertions. The buccinator muscle is partly visible.



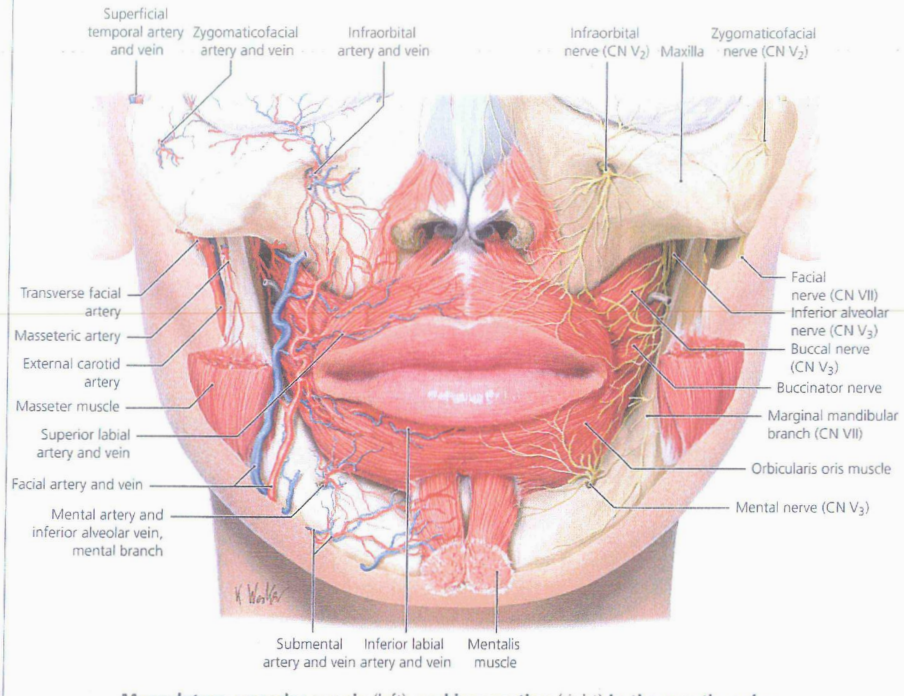
Musculature, vascular supply (left)**, and innervation** (right) **in the mouth region, superficial muscles of facial expression removed**

Fig. 1.15 The facial artery originates from the external carotid artery and reaches the facial region with its mandibular branch. After running diagonally over the cheek and along the side of the nose, where it is referred to as the angular artery, it anastomoses with the dorsal nasal artery, a terminal branch of the ophthalmic artery, which in turn originates from the internal carotid artery. The angular vein runs across and above the levator labii superioris muscle, while the angular artery runs below it. The facial artery takes a highly convoluted course in the cheek region and is stretched when the mouth opens. The facial vein shows considerably fewer twists and turns in this region. It extends accordingly when the mouth opens.



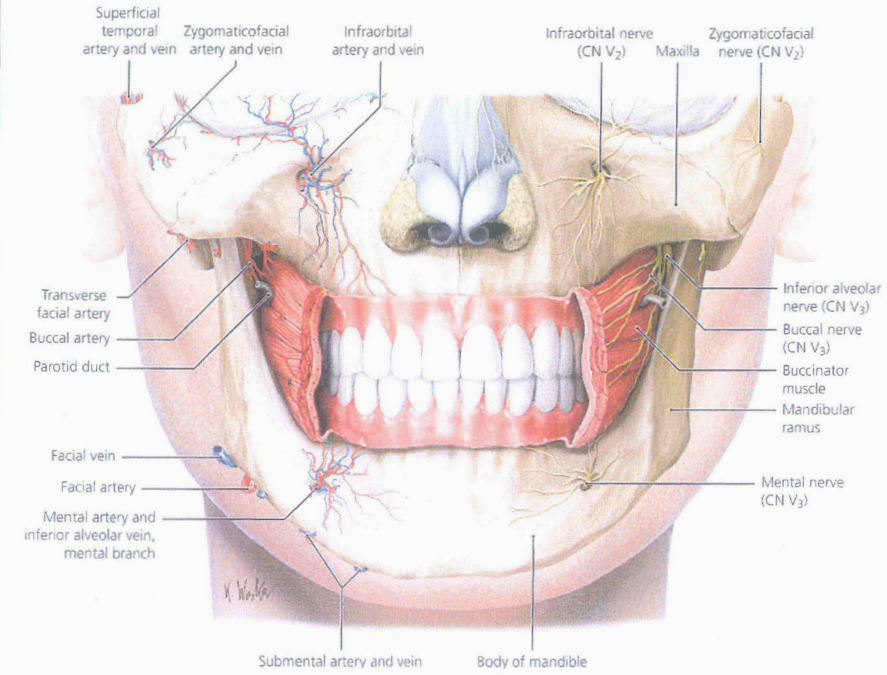
Musculature, vascular supply (left)**, and innervation** (right) **in the mouth region, orbicularis oris muscle exposed, levator labii superioris and levator anguli oris muscles removed**

Fig. 1.16 Removing the levator labii superioris and levator anguli oris muscles exposes the infraorbital foramen. After running through the infraorbital canal, the infraorbital artery and vein respectively run inward and emerge at this point, forming numerous anastomoses with the angular artery and vein. The infraorbital nerve also leaves the infraorbital canal here. The cheeks and the lip region are served by branches of the infraorbital artery and vein in the maxilla, and by the mental branches of the inferior alveolar artery and vein in the mandible. Substantial tributaries also originate from the facial artery or drain into the facial vein. Correspondingly, sensory innervation is provided by the infraorbital nerve and the mental nerve. The buccal nerve provides sensory innervation to the cheek.



Musculature, vascular supply (left), **and innervation** (right) **in the mouth region, orbicularis oris muscle exposed, masseter dissected**

Fig. 1.17 The outer walls of the oral cavity are formed predominantly by the orbicularis oris muscle together with the buccinator muscle. In this respect, the paired buccinator muscles and the orbicularis oris muscle, taken together, may easily be seen as a continuous muscle system, even though they are separate muscles. This muscular system is normally in balance with the tongue and determines the space for the dental arches.



Musculature, vascular supply (left), **and innervation** (right) **in the deepest layer of the mouth region**

Fig. 1.18 The vestibular oral mucosa of the cheeks and lip region is served by branches of the infraorbital artery and vein in the maxilla, and branches of the mental artery and vein in the mandible. Correspondingly, sensory innervation is provided by the infraorbital nerve and the mental nerve. The buccal nerve provides sensory innervation to the cheek.

1.3.2 Lips, Teeth, Periodontium, and Alveolar Processes

Anterior Mouth Region (▸ Fig. 1.19)

The alveolar processes and the teeth are bounded by the tongue from the inside and by the lips (and then laterally by the cheeks) from the outside. Correct, natural alignment of the incisors requires the cutting edge of the maxillary incisor to overlap the cutting edge of the mandibular incisor (overbite). The biomechanical ideal is for the cutting edge of the mandibular incisor to abut onto the maxillary incisor at the point of inflection between the maxillary incisor's palatal concavity and the convexity of its tubercle. Consequently, the cutting edge of the maxillary incisor sits slightly in front of the labial surface of the mandibular incisor (overjet). The position of the dental axes is significantly influenced by the forces exerted by the tongue and the lips. In this respect, however, swallowing and speaking have less of an effect than the constant push and pressure of the tongue and lips.

Upper and Lower Lip (→ Fig. 1.20)

On its outer side, the lip carries the typical hairy skin of the epidermis. Below it is the connective, tissue-rich dermis that houses the sweat glands, hair follicles, and sebaceous glands.

The intermediate zone – usually known as the vermillion or red margin – is the transitional zone between the outer and inner side. It covers the lips in the area between the outer skin and the oral mucosa. This intermediate zone is coated with a thin, multilayered, translucent, squamous epithelium that is weakly cornified and unpigmented and contains isolated sebaceous glands. The epithelium is particularly thin and hairless over the papillae. The vermillion also lacks salivary glands and therefore constantly needs to be moistened with saliva. This takes place predominantly by means of the salivary film that is formed when speaking or eating. The loose connective tissue of the lamina propria (a thin, subepithelial connective tissue layer) is traversed by capillary loops, which give the lips their intense color.

The inner oral side of the lip, known as the mucosal zone (the mucous membrane side), is characterized by its lining of lip mucosa, with an uncornified, relatively thick epithelium. The lamina propria is thin and contains loose connective tissue traversed by elastic fibers. The submucosa contains fat deposits, along with numerous individual salivary glands, jointly known as the labial glands. Blood vessels and nerves run through this area as well, with branches that extend into the lamina propria. Free nerve endings also extend into the epithelium. The muscular layer (also known as the tunica muscularis) consists of striated muscle tissue (DocCheck Flexikon 2019).