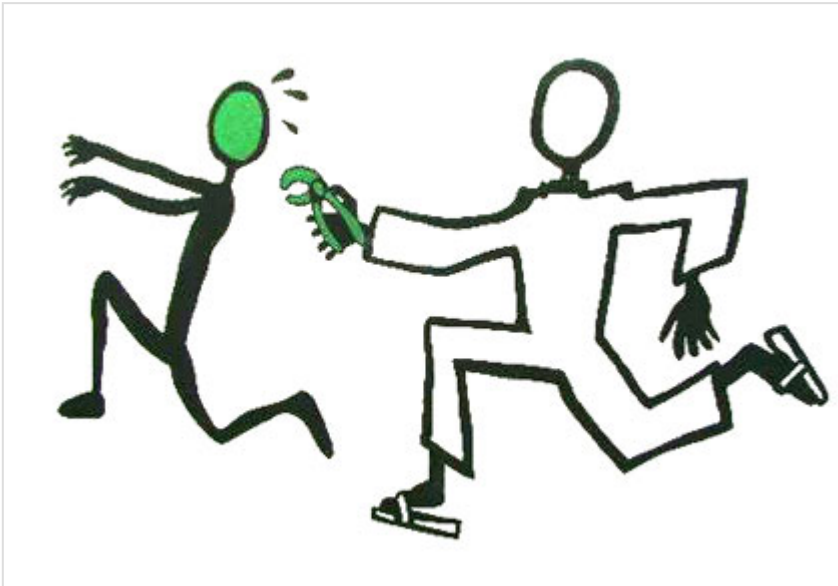


## Dental Phobia: The Fear of Dentists



Who does not know the feeling of uneasiness before going to the dentist? Certainly many have, and about 30% of the population reports to be actually afraid of going to the dentist. In some cases these fears are due to traumatic childhood experiences which can trigger palpitations, sweating, or a gagging reflex during dental treatment, but also sleeping problems the night before the dental visit. However, dental phobia often seems to be some sort of unexplainable primal fear. And the awareness that the dentist today “does not hurt anymore” does not really help much, because these anxieties are often not taken seriously

enough.

The consequences regarding dental health, physical and mental wellness can be devastating. But there is professional help available, which in some cases can become really necessary and beneficial.

The most important objective for us to help dental phobia patients is to gradually reduce their fears. For this to happen, mutual trust between the patient and treating dentist is essential. To achieve this, we take particular care and use special techniques. For example we [treat patients using laughing gas and sedation](#), and sometimes [general anaesthesia](#). At the end of the treatment, not only should the teeth be corrected, but the patient should be able to go through a dental procedure in an entirely normal way and without any fears. From hundreds of successfully treated cases, we know that this aim is possible. The experience report of a former anxiety patient describes the successfully conducted treatment from a patient's view.

You can either do a step-by-step reading or download the complete content as a pdf file:

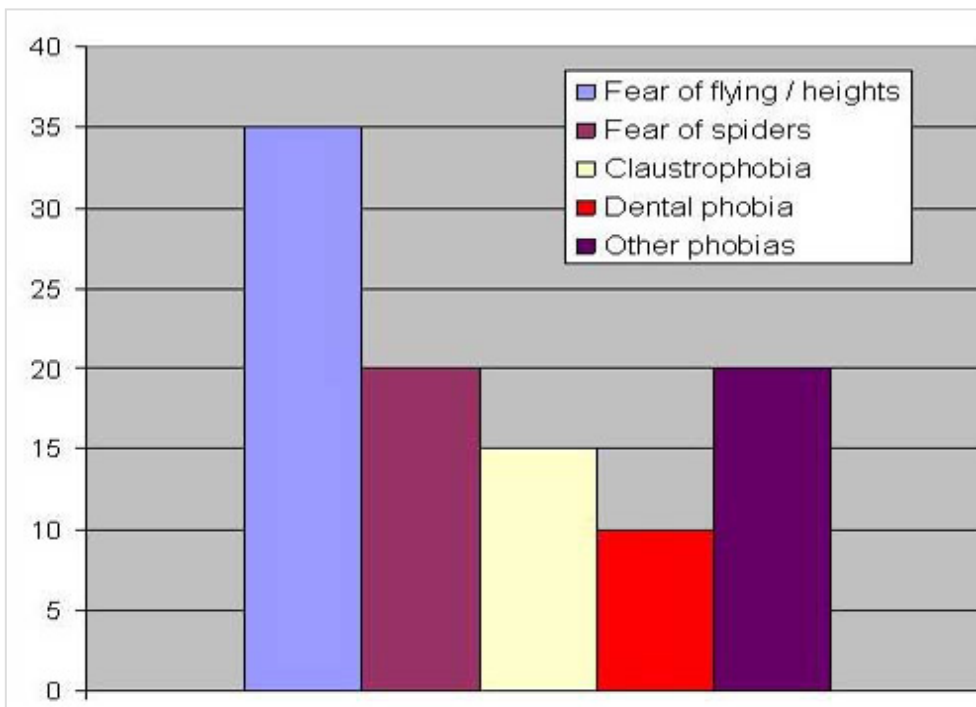
## Dental phobia: The fear of dentists

### What is a phobia?

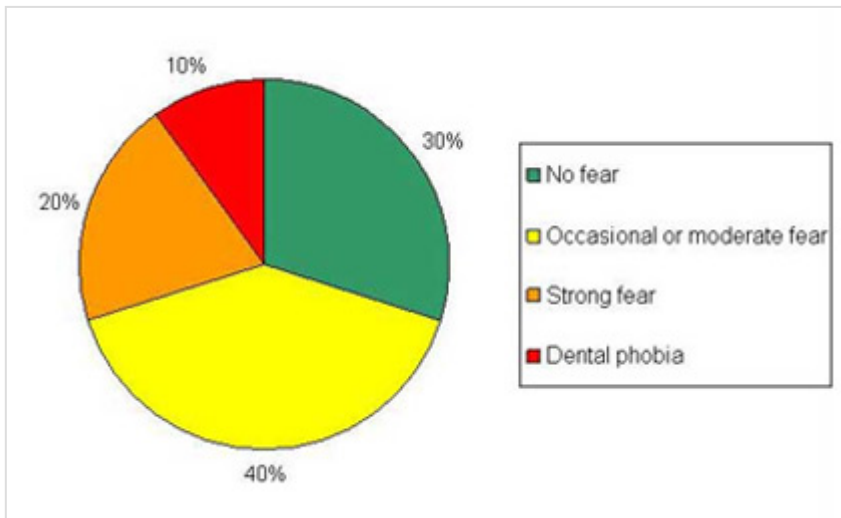


In medical terms, a phobia is an exaggerated, unfounded, and persistent angst or panic of particular situations, objects, activities, or persons, generally known as the phobic stimulus. It is expressed as an excessive and inappropriate need to avoid the cause of the fear. Well-known examples of phobias are for example the fear of flying, the fear of spiders, and claustrophobia. The term phobia however is also used in the general sense for aversions of any kind.

### The most frequent phobias



## Who is afraid of the dentist?



Almost everybody has at some point experienced some kind of fear before going to the dentist, but most of the time this does not stand in the way of a regular dental check-up or treatment. In cases of real dental phobia, which is also called dentophobia or odontophobia, the situation is different: In these cases the feeling of panic is so strong that the person suffering from it will try anything to avoid the visit to the dentist. Often, dental treatment will only take place when it can no longer be postponed because the pain becomes unbearable.

In contrast to a “normal” fear of the dentist, the person suffering from a true phobia may also experience physical symptoms before the treatment. In descending frequency the following is possible:

- ⊙ Sleep disorders during the night before the treatment day
- ⊙ Heart throbbing (palpitations)
- ⊙ Heart racing (tachycardia)
- ⊙ Dry mouth
- ⊙ Elevated blood pressure (hypertension)
- ⊙ Trepidation (tremor)
- ⊙ Feeling of suffocation
- ⊙ Hyperventilation (rapid breathing)
- ⊙ Nausea
- ⊙ Urge to urinate
- ⊙ Urge to gag / vomit
- ⊙ Fainting and hypotension

In general, dental phobias can be found in all age groups, **however more often in women than in men.**

### Factors that may favour dental phobias::

- ⊙ A generally timid disposition
- ⊙ Presence of another phobia or psychological illnesses
- ⊙ Depression
- ⊙ High level of stress
- ⊙ Drug consumption and / or alcoholism

According to our experience, anxious patients are also more frequently smokers than the average population. Whereas on average 25% of the adult population smokes, we found that dental phobia patients have a smoking rate of 64%.

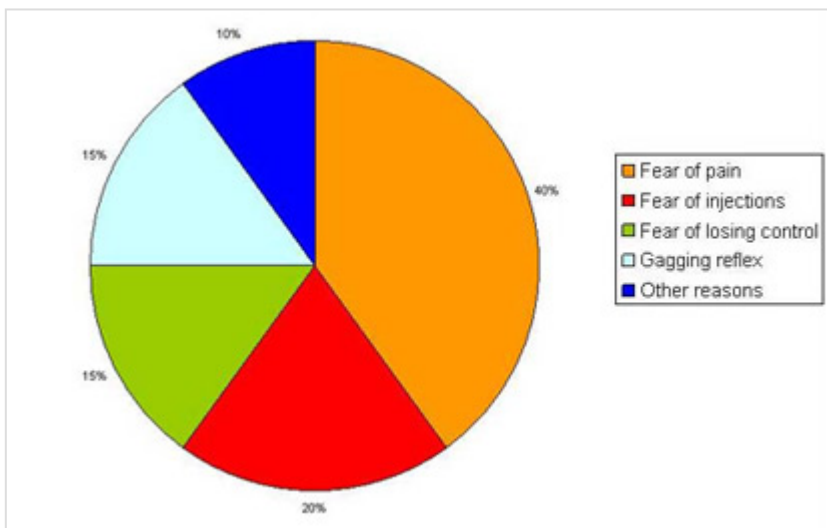
## Causes of dental phobia



About 30% of all of our anxious patients reported to have experienced traumatic dental treatments during childhood dental visits as a cause for their dentophobia. Reasons are thought to be pain experienced during these treatments and/or brutal and insensitive conduct by the dentist. Another third of the interviewed patients refer to scary accounts of others, frequently their own parents, as the starting point for their fears. For the remaining third, there do not seem to be any obvious causes for their dental phobia.

The percentage of the latter is most likely much higher. Dental phobia is often a form of primal fear that is rooted deeply in the unconsciousness without any obvious rational causes, similar to the fear of spiders or mice. From our observations it is hard to explain why the number of patients afraid of the dentist has rather increased in the last 20 years, despite the fact that dental medicine today is significantly more “humane” than it used to be in earlier times.

### Most frequently named reasons for dental phobia



It is not surprising that almost half of the interviewed patients stated that **pain is the main cause** for their dental phobia. It goes along with the conventional stereotype idea which associates dental medicine with pain, though most dental procedures performed today are painless.



**Fear of shots, or injection phobia**, is also a reason often given by dental phobia patients. Today, an injection of local anaesthetics belongs to many dental treatments as a matter of course. It is accepted by most patients as a necessary evil, since it prevents pain during treatment. In cases of injection fears, the extreme fear often displaces these rational considerations. For many patients, these fears are however limited to dental injections, whereas injections by other physicians are accepted without problems.

The **fear to lose control** and the **fear of being helpless** also play a part when looking for reasons for dental phobia. From a psychological point of view, the oral cavity is for many people an intimate area, into which the dentist intrudes with his instruments. A considerable number of patients is afraid to lose self-control, even if only partially, during dental treatments.

A **gagging or vomiting reflex** during dental treatments is commonly associated with the fear of dentists. In many cases dentophobia develops only secondarily, triggered by the patient's expected fear of the gagging reflex during the treatment (with subsequent loss of control).

Frequently, different sensations contribute to the triggering or amplification of feelings of anxiety in the already predisposed patient, for example:

- ⦿ **Drilling sounds:** Especially the high-frequency sound of the so-called “turbine”, a fast running drill operated with compressed air, triggers panic attacks in many dental phobia patients.
- ⦿ **Dentist smell:** The typical odour in many dental practices originates from eugenol, an artificial clove oil contained in dental cement and medicines. In the predisposed patient the perception of this smell can cause involuntary panic attacks.
- ⦿ **White coats and dental instruments:** The visual perception of the instruments or other attributes associated with former treatment experiences can lead to an anxiety increasing effect in the sense of a conditioned reflex.

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## Impacts of dental phobia



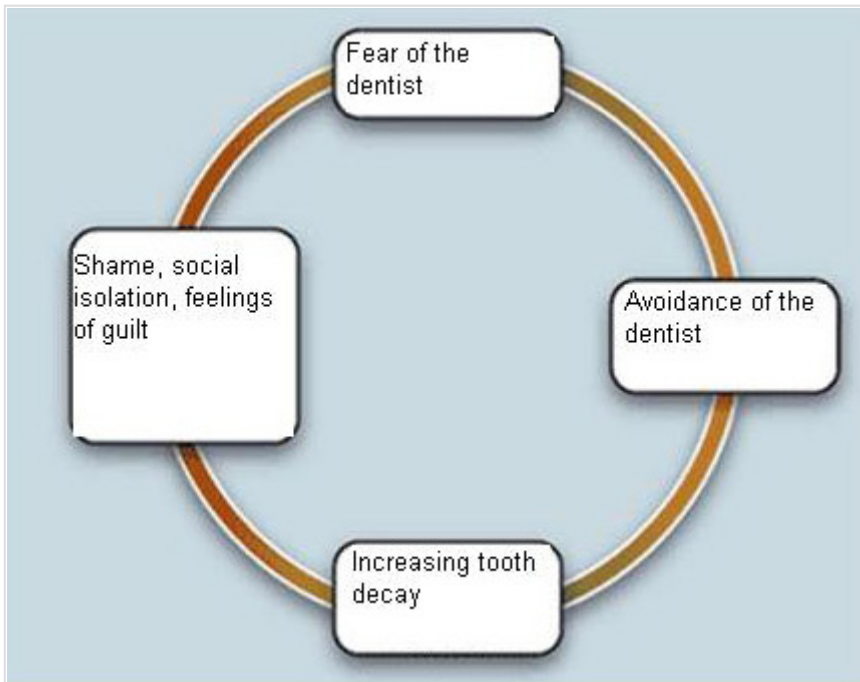
*43 year old male with serious dental phobia, whose last dental treatment was over 15 years ago. Serious damage by cavities and periodontitis with strong chronic pain. Only because of the increased social pressure from personal and professional surroundings did the patient decide to undergo a full mouth restoration.*

People who suffer from an exaggerated fear of dentists avoid appointments as long as they possibly can. Consequently both, regular professional cleanings with a dental hygienist and regular dental check-ups, which are essential for the prevention of dental and gum diseases, are omitted. As a result of poor dental hygiene, a bacterial lining is formed, that can lead to gingivitis and periodontitis, which then makes it easy for cavities to spread. Subsequently, chronic inflammations of the gums and periodontium as well as acute ulcerations can develop. As a result, this leads to a vicious cycle for the pain suffering dental phobia patient: The stronger the complaints and the more psychological strain, the greater becomes the fear of the inevitable visit to the dentist.

Many times these fears are not taken very seriously by friends and family. They are even made fun of. Unfortunately, many dentists also do not have sufficient sympathy. This isolates fearful patients who frequently do not have a trusting person to confide in. Also, increasing tooth damage results in aesthetic impairments and bad breath (halitosis) which adds to the problem. Often the patient is aware of it and is

ashamed, dares not to laugh and in general avoids socialising and social activities. Therefore, the danger of social isolation is not to be discounted.

## Vicious Cycle of dental phobia



## Dental phobia: Treatment of patients with dental phobia

### Treatment of anxiety patients

Dentists have become aware of the increasing number of dentophobia patients and started to specialise in the special needs of this patient group. For many years now, we offer in our practice special treatment methods for anxiety patients, and have had success in more than a thousand cases. These strategies as well as other concepts are presented in detail in this chapter.

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### Recognition of patients with fear of dentists

The estimated number of unrecognized dentophobia cases is relatively high. Of course, patients do not want to be seen as cowards, because they are ashamed or they do not want to admit their own fears even to themselves. This leaves the dentist with the not always easy task to recognize these patients early on, ideally at the time of their first examination.

Here are some guidelines how to identify patients with a fear of dentists:

- ◉ **Questionnaire:** The registration form, that all new patients need to fill out, contains not only details regarding health status, but also other specific questions. For example, if or how strong a fear of dentists may be present.
- ◉ **Patient dialogue:** An experienced dentist will often find out during the first discussion with a new patient with only a few questions, if there is a problem with anxiety.
- ◉ **Behaviour during treatment:** No matter how careful the screening, now and then there always will be a patient in the dentist's chair who will later reveal to have an anxiety problem. In some cases the phobia develops very slowly and therefore remains unrecognized for a long time – even by the patient. However, there are a few clues that an experienced dentist would not miss to identify. It starts with the patient's position in the dentist's chair, the posture, and possibly the movements of hand and feet. The patient's request for frequent rinsing – to interrupt the treatment – can also be a signal, as well as exaggerated gagging, vomiting, or swallowing reflex. Also, strong perspiration on the forehead is a sure sign that the patient does not feel well. It is important to recognize these symptoms early, so that the anxiety patient can be treated adequately.



*Cold sweat on forehead*



*Typical position of a dental phobia patient on the dentist's chair*

## Psychological treatment of anxiety patients



If it is only a matter of treating a phobia – in this case a dental phobia / dentophobia – this should primarily be the domain of a psychologist, psychotherapist, or psychiatrist. There are different therapy schemes that go from an approach based on psychoanalysis to confrontational therapy and lead up to cognitive therapy. In individual cases, anti-anxiety medication can be used therapeutically. Experienced therapists can refer to high success rates with these methods. However, in our dental practice treatment schemes are understandably less oriented to purely psychologically based procedures. But in particularly serious cases of dental phobia, an experienced psychotherapist can be consulted for treatment.

## Dental treatment of patients with fear of dentists



When treating patients with dental phobia, we want to achieve two objectives:

1. Best possible way of conducting the necessary dental restorative treatment, without anguish and stress free.
2. To resolve the patient's fear of the dentist and permanently eliminate it.

### Strategy

In order to achieve these objectives, we have implemented a successful strategy based on the following points:

- ⦿ Building of trust
- ⦿ Providing low stimulus atmosphere
- ⦿ Making sure of a gentle, stress free treatment
- ⦿ Offering "interactive" discussions

### Build trust

Many dental phobia patients report having been traumatised in the past from being betrayed by a dentist they had trusted. This incident may have occurred many years ago, for example by an insensitive or brutal school dentist. Also, the easily given promise by the dentist "for sure it will not hurt", which is then later not kept, can easily undermine patient confidence and be traumatizing for the patient.

This confirms that dental treatment of anxiety patients can only be successful, if the patient can absolutely trust his dentist. The anxious patient does not only expect perfect dental work, but also clear and reliable details regarding the upcoming treatment, as well as attention, patience, and understanding for his fears.

These demands can be a real challenge for the stressed dentist in hectic daily practice surroundings. Besides patience and psychological training, a large amount of empathy is necessary to understand the patient's fears and to then seek his confidence.

### Low stimulus atmosphere

For the phobia patient, the dental practice is a place loaded with all the experiences made in the past. This negative conditioning of the patient prone to key stimuli has to be kept to a minimum by appropriate measures.

Bright, ample and light-flooded practice facilities appear to the anxious patient much less cramping than dark and possibly only artificially illuminated rooms. Practice furnishings, including pictures, plants, and other things should provide a positive atmosphere.

Disturbing the waiting patient by uncomfortable treatment noises (drill, suction), and typical odours (disinfectants, etc) should certainly be avoided.

Therefore, long waiting times that only promote anxiety must be avoided whenever possible. The waiting area should offer diverse reading materials as a distraction for patients.

## Gentle, stress-free treatment

A gentle and pain-free treatment should actually be a matter of course today, not only for anxiety patients. By now, the efficacy of local anaesthetics has been perfected to the point, that not only dental treatments, but also major interventions can be conducted entirely without pain.

Therefore, the fear that the anaesthesia may not have an effect ("the injection does not work") is unfounded. Almost always, a sufficient degree of anaesthesia (e.g. of a tooth) is possible when induced correctly.

Due to the fact that many dental phobia patients suffer from a fear of injections, the administration of anaesthesia should be carried out with particular care. The following procedures have proven to be of value to minimize puncture pain:



*Intra-ligamentous injection*

- ⊙ Numbing of the injection area first with an anesthetizing cream or ice-spray
- ⊙ Using especially fine needles
- ⊙ Intra-ligamentous anaesthesia: Here the gum is not punctured, but the anaesthetic is channelled directly into the bone via the root of the tooth. The intra-ligamentous anaesthesia practically does not hurt. It acts immediately and avoids the unpleasant numbness of lip and tongue, which can sometimes last for hours with normal local anaesthetics.
- ⊙ Computer controlled local anaesthesia (The Wand): Most of the time, the pain during an injection does not come from the puncture, but from the pressure with which the anaesthetic is injected into the tissue. There is now a computer for anaesthesia available, which is called "The Wand". It is, as its name says, more like a magic wand that electronically controls injection pressure to allow an absolutely pain-free injection for anaesthesia.



*Anaesthesia computer  
The Wand*

Of course, a gentle and stress-free treatment also needs especially trained, sensitive staff members, who recognise the patient's wishes at the right time. For example, when the patient needs a treatment break or would like to rinse. Many anxious patients appreciate earphones to filter out uncomfortable drilling sounds during treatment and playing calming music.

However, all these precautions are still not enough for most dental phobia patients to overcome the extreme fear of the dentist. We know from experience that [sedation \(calming\) with laughing gas or sedatives](#) are frequently regarded as an ideal supplementation to the above mentioned measures.

## Preliminary discussion



*Dr. Schulte at a first consultation with an anxiety patient*

Usually, the first consultation with an anxiety patient is never conducted in the treatment room. This is done in a neutral meeting room entirely lacking dental equipment. In this quiet and relaxing atmosphere the patient can describe at leisure his case and concerns. Afterwards, the dentist will explain the intended examination procedure to the patient and then accompany him into the treatment room. We have excellent experience with this preliminary discussion, which makes it easier for the patient to talk about his fears and to establish a first trust building contact with his treating dentist. .

## The examination

Many dental phobia patients have severe tooth, gum, and periodontal damage from many years of avoiding dental treatments. Therefore, a thorough examination is necessary, but should not put any more strain on the anxious patient than necessary. It is a good idea to make it clear from the beginning that there will be no treatment at the day of examination, unless this is the expressed wish of the patient, for example, in cases of acute pain.

In most cases, first, a panorama X-ray picture (OPT) will be taken. This provides a good overview of all teeth and bordering anatomical structures. Then the patient is accompanied to the treatment room.

In our experience, it very helpful to do a laughing gas test for our anxious patients during their first examination. The advantages of this highly effective method are described in detail in the following section. Nitrous oxide (laughing gas) provides not only a relaxed atmosphere for the examination, but also relieves the patient from his anxiety for the upcoming treatment sessions.

## Follow-up meeting

At the end of the examination, a detailed concluding discussion takes place with the patient. The treating dentist explains the findings to the patient and discusses with him different treatment options. The patient has the opportunity to report on his experiences with the laughing gas test administration. He is now in a position to imagine precisely how the dental treatment could take place under the influence of laughing gas or sedatives. Dentist and patient can now determine together which treatment steps can be carried out possibly with sedation, under the influence of laughing gas or sedatives, or if it is advisable to conduct parts of the treatment under general anaesthesia.

## Treatment of anxiety patients under sedation (tranquillisation)

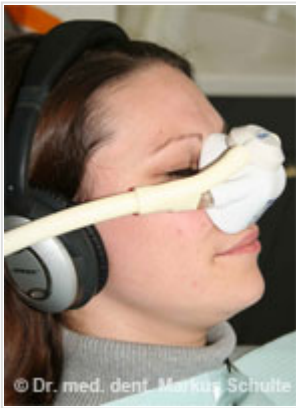
The term sedation is derived from the Latin word “sedare“ = to calm. It refers to a medication-induced dampening of the central nervous system, which produces a calming effect on the patient. The degree of sedation may vary from a light calming effect to a condition of being half asleep. In contrast to narcosis (general anaesthesia), a certain degree of consciousness still remains, as well as spontaneous breathing and protective reflexes.

There are many medical treatments, for example gastroscopy or colonoscopy, that are often experienced as uncomfortable or painful by the patient and can be conducted under sedation. Also in dental medicine, many procedures are easier accomplished with conscious sedation. For the anxious patient it can serve as an alternative to the treatment under general anaesthesia.

Basically, there are two types of sedation for anxiety patients:

- ◉ Sedation by inhalation with laughing gas (nitrous oxide)
- ◉ Medication-induced sedation with tranquilizers

### Sedation by inhalation with nitrous oxide (laughing gas)



A dental phobia patient is treated with laughing gas in the following way: She inhales a mixture of nitrous oxide and oxygen via a light-weight nose mask. Through earphones, which also protect from disturbing treatment noises, gentle calming music can be heard. After the first breaths are taken, a slight tingling sensation in hands and feet indicate the initiation of the laughing gas effect. Then, fear is replaced by a comforting feeling of warmth and security. The patient is in a sort of trance condition, far away from the treatment activity. The patient experiences pleasant thoughts and time seems to fly. At the same time, pain sensitivity and unpleasant reflexes such as gagging and swallowing impulses are markedly reduced.

Laughing gas (nitrous oxide, chemically N<sub>2</sub>O) has been used for over 150 years for medical purposes and is the oldest and most researched anaesthetic gas. It is remarkable that it was a dentist – the American Horace Wells – who discovered in 1844 the narcotic effects of the colourless, slightly sweet smelling gas. At first, laughing gas was used pure without the addition of oxygen, which led to a transient unconsciousness of the patient, and sometimes to uncontrollable laughing attacks, which explains its name. In those days, neither local nor general anaesthesia existed, and the short lasting loss of consciousness from nitrous oxide was used for the rapid conduct of painful interventions.



Adjacent: Laughing gas equipment with variable ratios of laughing gas/oxygen

Gas flow and laughing gas concentration (mixture of oxygen / nitrous oxide) are gradually variable. This is important because laughing gas sensitivity can be very different from one person to another. There is an optimal mixture ratio for every patient, which is determined in advance.

Today, laughing gas is only administered in combination with oxygen, where the proportion of oxygen is at least 30%. Negative or potentially harmful side effects, such as the loss of consciousness, are therefore prevented in a safe way. The gas reaches the blood stream over the lungs and binds transiently to certain brain receptors. In the brain it unfolds its action, which is characterised by the following three different effects:

- ◉ **Pain killing effect (analgesia):** Nitrous oxide treatment markedly shifts the pain threshold to a higher level. The patient hardly feels minor pain. For example, the local dental anaesthesia injection, which otherwise is frequently experienced as very uncomfortable, can be administered without the painful

experience for the patient. Even if laughing gas sedation can not replace local anaesthesia, much less is needed due to the analgesic (pain killing) effect of laughing gas than would otherwise be necessary for the non-sedated patient.

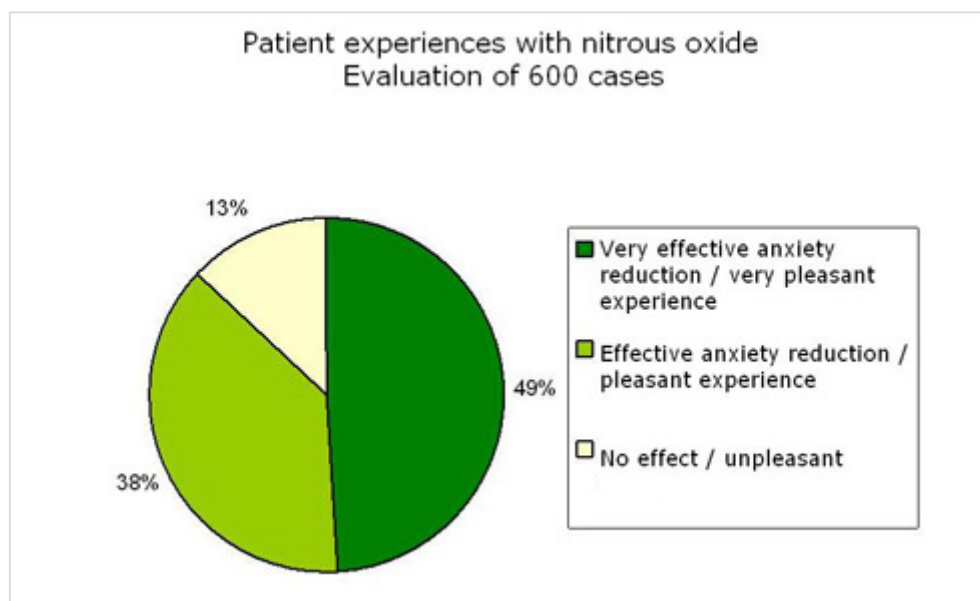
- ⦿ **Anxiety reducing effect (anxiolysis):** In most dental phobia patients, sedation with nitrous oxide has a pronounced anxiety reducing effect (anxiolytic effect). The initial anxiety and tension yield to a comfortable trance condition. This makes even unpleasant and long treatments easy to endure. Because laughing gas activates pleasant thoughts and fantasies, the actual treatment time is subjectively felt as much shorter than it actually is.
- ⦿ **Inhibition of gag reflex (antiemesis):** A frequent problem for dental treatment is the impulse to gag, particularly in cases of dental phobia. During sedation with laughing gas this gagging reflex is strongly reduced. Even crucial procedures, for example dental impressions or x-ray pictures taken in the back area of the mouth, are possible without problems. In cases of very strong gag reflexes, laughing gas can also be combined with an antiemetic (medication against the urge to vomit).

## Laughing gas in dental medicine

For over 150 years now, nitrous oxide has been successfully administered in dental medicine. In earlier times, when no effective local anaesthesia was available, the pain dampening effect of this gas was of major importance. Today, its anxiety reducing effect has become more important. In the USA, where more than 50% of dentists use laughing gas, as well as in the other Anglo-Saxon countries and Scandinavia, sedation with laughing gas is a standard procedure for many dentists. During the last decades however, dental nitrous oxide sedation was almost forgotten in many European countries, but has experienced a considerable renaissance in the last few years.

Nitrous oxide is not only given to patients with dentophobia, but because of its agreeable effect it is also valued by patients not necessarily considered to be anxious. Also, in paediatric dental medicine, sedation with laughing gas is a valuable aid in the treatment of anxious but otherwise cooperative children. However, understanding the importance of the upcoming dental treatment should always be present. Laughing gas is unsuitable for “total deniers” and small children under the age of 6 years, who can not breathe deliberately through their nose.

### Patient experiences with nitrous oxide (evaluation of 600 cases)



The diagram above shows the statistical analysis of 600 of our own cases. In this study 87% of the patients treated with laughing gas reported to have made positive or very positive experiences. Laughing gas is less suitable for patients who are afraid to lose control and are therefore unable to “let go”. They experience the effect of laughing gas as uncomfortable, because they are not able to glide into a state of trance and instead try to fight sedation. This group of patients responds better to [medication-induced sedation with Dormicum](#).

## Advantages of nitrous oxide

The big advantage of sedation with laughing gas is the optimal control of the procedure. The anxiety reducing effect starts immediately after the first inhalations and the degree of sedation can be influenced by changing the nitrous / oxygen ratio of the mixture. At the end of treatment, nitrous oxide administration is stopped and the patient inhales pure oxygen for a few moments.

Since laughing gas can not be metabolised, the gas is exhaled within a very short time period and is completely removed from the body. The "hang-over effect" of other sedatives, which remain in the circulation and have an after-effect for many hours, does not exist for laughing gas. In contrast to all other methods of sedation, **the patient can leave the practice alone and without accompaniment**. In the USA, which is known for its very strict liability legislation, the patient is allowed to drive home in his car after a waiting period of 25 minutes. For safety reasons however, we recommend to use public transportation after treatment with nitrous oxide.

Another decisive advantage is the **safety of the procedure**. It hardly has any side-effects when used correctly, except for occasionally experienced nausea. Laughing gas has been used for medical purposes for over 150 years and therefore it is the most researched method of sedation. Scientific studies with millions of documented administrations by dentists in the USA did not demonstrate any fatal or life-threatening incidences, concluding that nitrous oxide inhalation is seen as the safest **form of sedation** in dental medicine.



*Our patients are monitored with a pulse oximeter during sedation. A pulse oximeter measures oxygen saturation in the blood (SpO2) with a finger sensor, as well as heart rate (pulse), and even allows an efficient monitoring of vital functions.*

As with every medication, there are some, although few, contra-indications also for nitrous oxide. These are conditions in which laughing gas should not be used:

- ⊙ Pregnancy: especially not during the first three months
- ⊙ Serious chronic obstructive pulmonary disease (COPD)
- ⊙ Vitamin B12 deficiency
- ⊙ Impaired nasal breathing

Problematisch kann Lachgas bei stark klaustrophobischen Patienten sein, wenn sie die Nasenmaske als beengend empfinden und daher nicht tolerieren. Auch sollten die Nasenwege frei sein, um die Inhalation des Gases durch die Nase zu ermöglichen.

## Nitrous oxide for dental phobia therapy

In terms of our [philosophy](#), which aims to permanently reduce the fear of dentists, laughing gas is an optimal aid. In contrast to general anaesthesia or sedation with Dormicum, patients experience treatment without fear and are relaxed but still fully conscious. This is very important from a therapeutic point of view. After the successfully conducted [laughing gas test](#) during the initial examination, the fear of the patient is already reduced, so that the treatment can be initiated. Then, after the completed treatment with nitrous oxide, the patient knows that sedation works and that it helps to overcome his phobia. This means that the vicious cycle “fear of the fear“ is broken. From our experience, we know that many patients need less and less laughing gas over time, until they spontaneously decide to go without it. When this stage is reached, the objective to beat dental phobia has been met, and the patient can be treated in a completely normal way and without any kind of sedation.

## Sedation with Dormicum

As an alternative to laughing gas, other medication-induced methods of sedation have been established and were proven to be effective in dental medicine. These sedatives are active substances from the group of benzodiazepine compounds, which have been used for decades as tranquilizers. The most popular medications used are:

- ◉ Dormicum® (active substance midazolam)
- ◉ Valium® (active substance diazepam)

Valium is not as suitable for sedation because of its long retention period (half-life) in the circulation, as the easier to manage Dormicum. It is almost completely metabolised within a few hours, and has now become a widely accepted medication for sedation. For many years we have treated dentophobia patients in our practice under sedation with Dormicum. In some cases, we administer laughing gas additionally.

### How is Dormicum administered?

- ◉ Orally: as tablets or syrup (for children) about 30 minutes before treatment
- ◉ Intravenously: by injection or infusion immediately before treatment
- ◉ Nasally: as nasal spray immediately before treatment
- ◉ Rectally: as suppository or enema for infants about 15 minutes before treatment



Initially, Dormicum induces a **reduction in anxiety** (anxiolysis) with pronounced signs of relaxation and muscle relaxation, as well as a light euphoria-inducing effect. With higher dosages, a so-called **half-sleep** sets in. The patient no longer consciously is aware of surrounding activities and hardly reacts when being addressed. Normally, dental treatment during this phase is possible without any problems. However, patient co-operation (opening or closing mouth, etc) is very limited. The short-lasting Dormicum effect of about 45 minutes makes it necessary to repeat the medication doses several times during longer interventions. Patients often report after the intervention that they

do not remember anything at all (anterograde amnesia), which is considered to be the advantage of this method.

However, one disadvantage using Dormicum is that patients always need an escort for their return home (even when using public transportation) due to the hang-over effect of the medication. Driving a vehicle is not allowed until 12 hours after the intervention.

## Safety

When used as intended by an experienced professional, these sedatives which have been successfully used for many years, for example Dormicum, are very safe with very few side-effects. The correct dosing, however, is not easy because it has to be individually adjusted to every patient. Some patients need very high doses for a sufficient degree of sedation, whereas half the amount may already lead to deep sleep in others. Caution is indicated when used in elderly patients, who often respond intensely to Dormicum.

In our practice we monitor the patient's vital functions with a pulsoxymeter during all sedation procedures.

## Contraindications

(Circumstances in which Dormicum should not be administered):

- ⊙ pregnancy, especially during the first 3 months
- ⊙ Myasthenia gravis (rare muscle and nerve disease)

In our practice we often use Dormicum for the sedation of anxiety patients. It was found to be a safe and effective procedure.

## Treatment under general anaesthesia



Every anxiety patient dreams of gently falling asleep and to undergo the feared treatment during deep sleep without experiencing even the slightest bit. Dental treatment under general anaesthesia meets exactly this criterion.

General anaesthesia or narcosis is a medication-induced artificial deep sleep, in which consciousness is completely obliterated. In this state, the perception of pain and protective reflexes are no longer present. General anaesthesia is induced by injecting an anaesthetic. Respiration needs to be supported artificially by an inserted tube into the trachea, which is why it is called intubation narcosis

(ITN). The insertion of the tube can be done either through the mouth or through the nose. However, nasal intubation is preferred during dental interventions because it does not obstruct the oral cavity. The anaesthesiologist conducting the narcosis controls the degree of narcosis and constantly monitors the patient's vital functions (heart rate, oxygen saturation, blood pressure, breathing, etc).

The introduction of new narcotic agents, such as Propofol® for example, has reduced side-effects which were quite common in the past. The degree of narcosis can be controlled precisely, and formerly frequent incidences of nausea and vomiting after waking up are hardly seen today even after several hours of narcosis. Patients wake up gently and completely pain free immediately after the intervention, and are able to leave the practice with an escort about one hour after surgery.

Dental treatments and surgery under general anaesthesia are conducted in our practice on a regular basis. We can fall back on an experienced team of anaesthesiologists working in out-patient care from [narkose.ch](http://narkose.ch).

Also, major interventions can be carried out in the very modern aseptic operating theatres of the [Hirslanden Clinic St. Anna in Lucerne](http://HirslandenClinicSt.Anna.in.Lucerne), where a professional team of anaesthesiologists is available.

## When is dental treatment under general anaesthesia indicated?

- ⊙ Major surgical interventions, extensive implant treatments, bone grafting procedures, etc.
- ⊙ Children unwilling to undergo treatment
- ⊙ Anxiety patients, if a treatment with sedatives is not possible or is not advisable

### Safety

Advances in narcotic medicine have contributed to making general anaesthesia a safe procedure today. Serious complications occur only very rarely (about 1 in 100,000 cases).

### Contraindications (situations in which anaesthetics should not be used)

Optional interventions, such as dental procedures, should not be carried out under general anaesthesia in the following cases:

- ⊙ Major impairment of general physical condition due to serious illness (= increased anaesthesia risk)
- ⊙ Pregnancy

In case of doubt the anaesthesiologist decides, based on medical records (ECG, laboratory parameters, etc.), if narcosis is possible without danger.

### Patient satisfaction

Based on our own statistical data from several hundred cases, we know that dental treatment under general anaesthesia has a very high rate of acceptance. More than 95% of treated patients reported to be satisfied or very satisfied with their experiences and would agree to be treated again under general anaesthesia.

## General anaesthesia and dental phobia

General anaesthesia is often praised and advertised for the treatment of anxiety patients. Initially this makes sense. It is a very pleasant idea for many patients to be able to just fall asleep and not to wake up until everything is over.

Although we conduct numerous interventions under general anaesthesia in our practice and in the Hirslanden Clinic St. Anna, we do tend to make the indication for narcosis in dental phobia patients somewhat conservatively. According to our [philosophy](#), we actually want to give our patients the best possible fear-free and stress-free treatment. However, beyond this, it is our aim to mediate a lasting reduction in their fear of dentists, and to free them permanently of their phobia.

Although the treatment under general anaesthesia is very attractive to the fearful patient, we know from our experience that it does not allow a genuine cure of the dentophobia. On the contrary, it generates a certain dependency, because the patient will ask again for general anaesthesia at the next opportunity. For this reason, our first choice of treatment for anxiety patients is a sedation primarily with laughing gas.

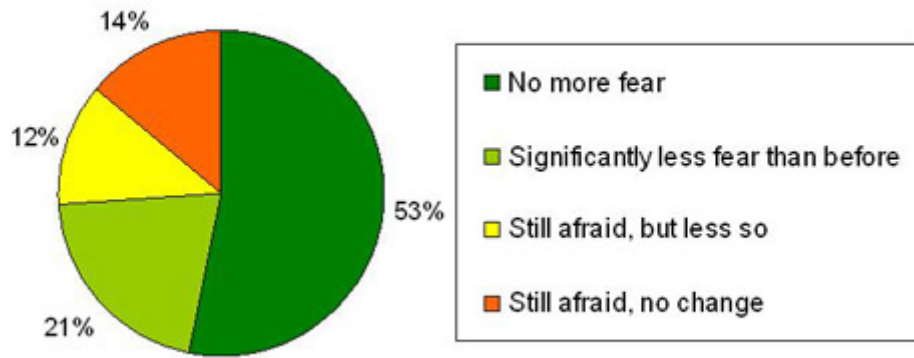
Nevertheless, we want to consult our patients and not dictate, and we will conduct any treatment even general anaesthesia according to the patient's wishes, if it makes sense and is justifiable.

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## Success rate of our strategy against the fear of dentists

During the last few years we have treated more than 1000 anxiety patients with our method, and the results from questionnaires at the end of treatment were statistically analysed. Accordingly, 53% of the polled patients indicated to have absolutely no more fear of the dentist. For 21% the fear was markedly reduced, and for 12% moderately reduced. Only in 14% of the patients, dental phobia remained unchanged after the treatment.

**Treatment of anxious patients:  
Success rate of our strategy**



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## Further Information

Information on [driving directions to our practice](#), [opening hours and registration of new patients](#), as well as detailed [contact information](#) can be found at our practice website [www.drschulte.ch](http://www.drschulte.ch) .

Do you need to talk to us immediately? No problem.  
Just call us: 041-210 58 58, or from outside the country: 0041-41-210 58 58.  
Mo.-Fr.: 08:00 - 12:00 a.m., 1:00 - 4:15 p.m.

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