

Local anaesthesia without needle.  
*INJEX. The soft way to inject.*



**INJEX** • virtually painless • tissue preserving • timesaving • safe

## A future without needles!

### *INJEX. Needle-free injections for infiltration anaesthesia.*

The fear of needle injections has been widespread since the development of the conventional syringe in 1853. Experienced dentists are well aware of the different problems associated with the conventional needle syringe: Delay until onset of anaesthesia, painful injections, feelings of fear and anxiety exhibited by patients, tissue damage, and unpleasant numbness of soft tissue, risk of injury with restless or fearful patients...

INJEX Pharma now offers a solution for previous local anaesthesia problems: a needle-free injection system.

The INJEX System uses an injection ampoule with a micro orifice of only  $\varnothing$  0.18 mm through which the anaesthetic is administered under dosed pressure to the submucosa – virtually painless and exactly where it is needed.

#### **Areas of application:**

The ampoule has to be placed on the attached gingiva at an angle of 90° directly above the tooth to be anaesthetised. This defines a determined area of application (anaesthesia is possible with the following teeth<sup>1</sup>: 15-25, 33-43, all teeth of the primary dentition 55-85).

#### **Pediatric patients:**

Children are especially difficult dental patients because they are so very much afraid and cannot understand the purpose of the treatment. Experienced dentists are able to use INJEX to administer anaesthetic to all deciduous teeth (KÖRPERICH, 2002). The shorter onset time (SALEH et al., 2002) also reduces the treatment-induced stress for children. Since only 0.3 ml of local anaesthetic is administered, the maximum dose is hardly ever used. Even very young children can be treated with INJEX (KÖRPERICH, 2002) who are especially pleased with the needle-free injection. The stress for accompanying parents is also reduced significantly due to the shorter treatment time. Small children are frequently less willing to cooperate with the dentist. This is where INJEX reduces the stress of administering a local anaesthetic due to the lower risk of injury. Patients usually continue to request anaesthesia with this system the next time they visit their dentist (MUNSHI et al., 2001; GRAU et.al., 1997; SARAVIA et al., 1991).



*Needle free injection for local anaesthesia of mandibular teeth*



*Needle free injection for local anaesthesia of maxillary teeth*

#### **Adult patients:**

Many adults are afraid of the syringe with needle (SCHNEIDER, 2001) as well as the pain induced by the dental treatment. This problem can be alleviated with the "needle-free syringe" but the application area for the permanent set of teeth is limited (15-25, 33- 43) (KÖRPERICH, 2002). Adults, even those who are highly anxious, report less painful injections with INJEX and usually request the same delivery system when visiting the dentist's office again (SCHNEIDER, 2001; FRIELING, 2000).

<sup>1</sup>numerical notation of teeth

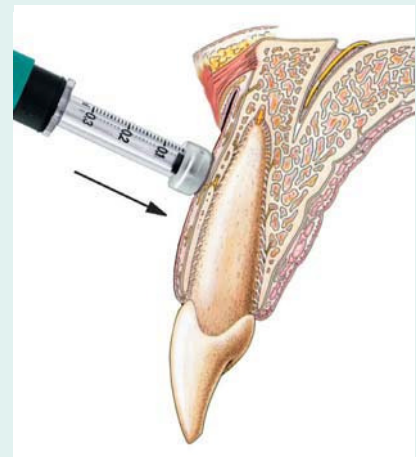


**Method:**

Contrary to conventional local injection methods, infiltration anaesthesia with INJEX delivers the local anaesthetic submucously down to the periosteum (KÖRPERICH, 2002). This leads to a more rapid diffusion and resorption and a quicker rise to the effective concentrations.

The result is a significantly quicker rise to a pain-eliminating level. Studies have shown effects in just a few seconds (1 to 90 s) after administering the anaesthetic. The therapeutic effective window with a reliable and safe elimination of pain extends in comparison with conventional injections (SALEH et al., 2002). A shorter duration of soft tissue numbness is observed as a positive side effect, which pleases patients additionally (KANZLER, 2001) fig.1.

Sufficient anaesthesia is achieved with comparably low doses. This is especially important with children who have a lower dose limit. The total required amount of local anaesthesia is even further reduced due to the extended effective window and the targeted anaesthetising of the individual tooth. Consequently, reduced doses are necessary to anaesthetise patients in general (SALEH et al., 2002).

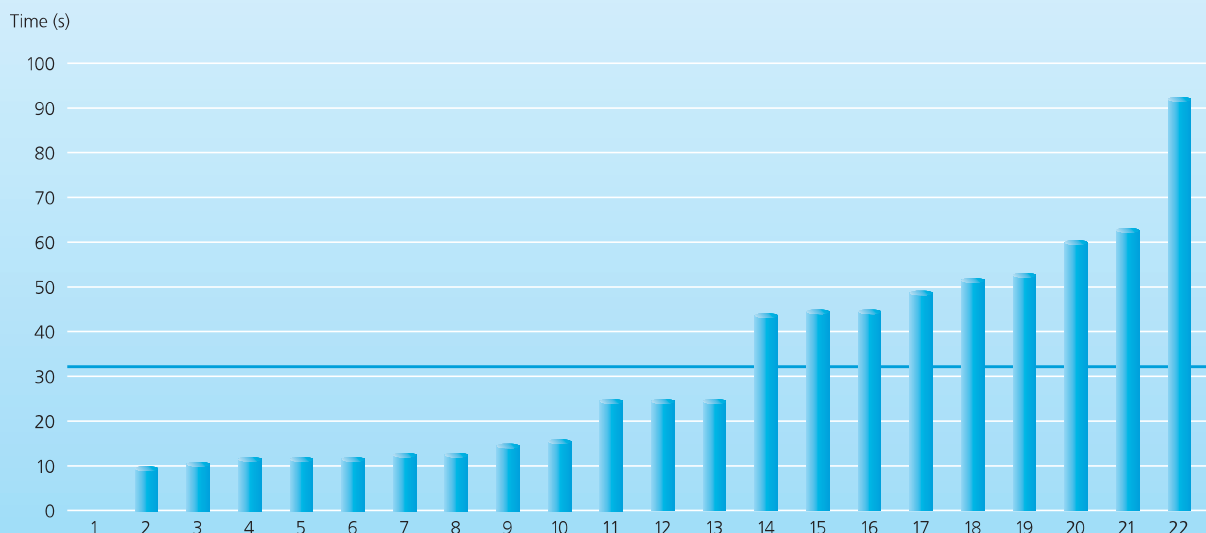


*Positioning of the injector on the attached gingiva of a front teeth*

**Areas of application:**

Fillings, extractions, cleaning, and smaller periodontal procedures are possible with the teeth listed above after anaesthetising the individual tooth (KÖRPERICH, 2002; SCHNEIDER, 2001; FRIELING, 2000; SARAIVIA et al., 1991). INJEX thus offers the option of needle-free anaesthesia for numerous routine dental procedures and interventions performed at the dentist's office. Patients are less afraid of dental procedures and trust their dentist more.

**Fig 1: Onset of anaesthetic effect after injection with INJEX [s] Mean 31.8 (illustrated as blue line)**



INJEX. Local anaesthesia without a needle for infiltration of selected teeth.  
*Easy and safe to use.*

### The Benefits at a glance:

- Injection without needle
- Virtually painless and tissue preserving
- Prevents needle-stick injuries
- Quick and efficient anaesthesia and thus time saving treatment
- Selected anaesthesia in a minimum range
- Less numbness after treatment
- Fewer risks of side effects due to lower doses
- Eliminates risk of infection at injection site

### The INJEX-system



If you have queries or suggestions please contact us.

### Literature:

- FRIELING, 2000: Empirical report, expert statement
- GRAU et al., 1997: A needle free intraoral injection technique- clinical study on patients acceptance of the needle free injection device Syrijet Mark II, Schweiz Monatschr Zahnmed, Vol 107-11
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- MILGROM et al., 1997: Four dimensions of fear of dental injections, J Am Dent Assoc 1997, 128(6): 756-66
- MUNSHI et al., 2001: Clinical evaluation of the efficacy of anesthesia and patient preference using the needle-less jet syringe in pediatric dental practice, J Clin Pediatr Dent 25-2: 131-6
- SALEH et al., 2002: Efficiency of a needle-free injector-system for dental local anesthesia, J Dent Research 81 Special Issue A
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