

## Wortelfracturen



1

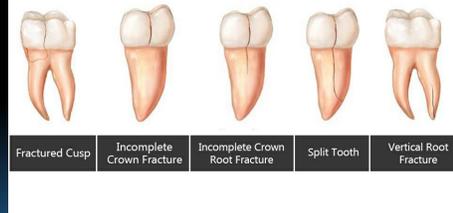
Waarom wil ik over wortelfracturen spreken?

- Multidisciplinaire (diagnose, behandeling)
- Komt vaak voor (vaker dan 20 jaar geleden!)
- Moeilijke diagnose

2

## Definities en diagnose

### TYPES OF CRACKED TOOTH



3

4

Horizontaal wortelfractuur (trauma)  
 Verticale wortelfractuur



5

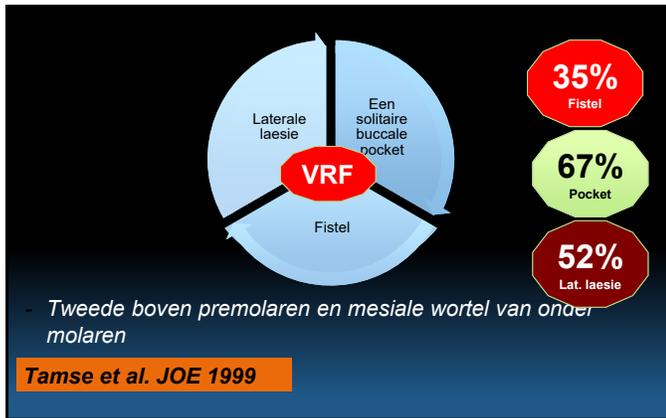
*An evaluation of endodontically treated vertically fractured teeth.*

Survey of 92 teeth with VRF evaluated before and after extraction .  
 Most fractured : maxillary 2<sup>nd</sup> premolars and mesial roots of the mandibular molars

- 67.4% -solitary buccal pocket
- 34.8% -sinus tract
- 52% -lateral radiolucency

**Tamse et al. JOE 1999**

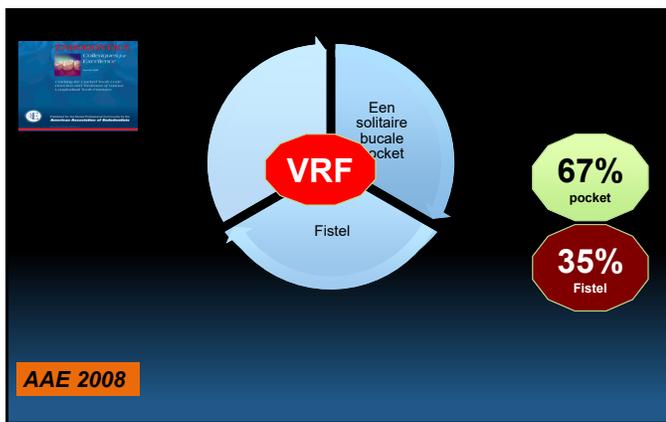
6



7

"Having a sinus tract and a narrow, isolated periodontal probing defect in association with a tooth that has had root canal treatment, with or without a post placement, is considered to be pathognomonic for the presence of a VRF. "

8



9

Vermoedelijke Verticale wortelfractuur -Hoe kan ik het zeker weten?

10



11



12



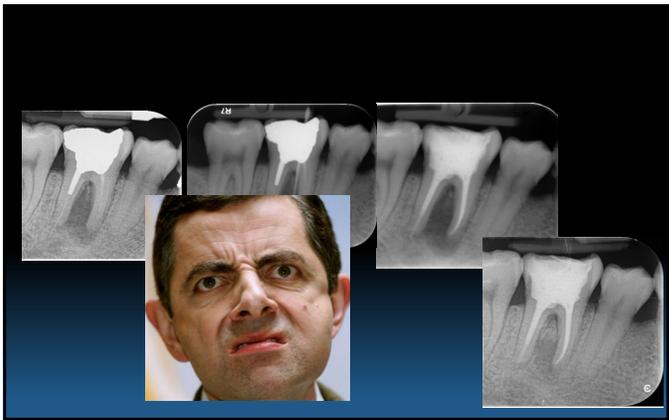
13



14



15



16



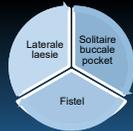
17



18

*Diagnosis of VRF in endodontically treated teeth based on clinical and radiographic indices: a systematic review.*

“ There is no substantial evidence regarding the accuracy of the clinical and radiographic indices for the diagnosis of VRF in endodontically treated teeth” .



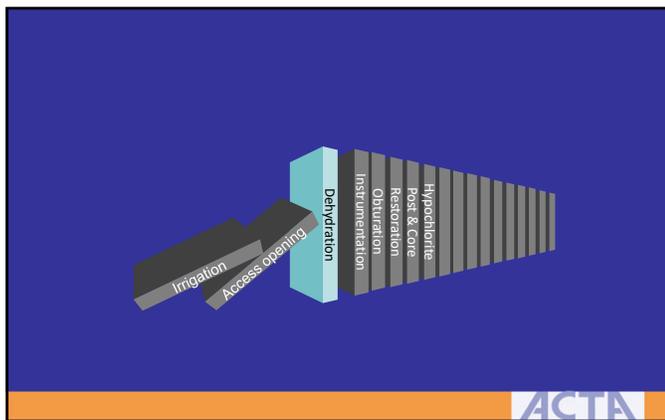
Tsesis et al. JOE 2010

19

### Aanvullende endodontische factoren

- “Hoge” fistel, “dubbele” fistel
- “Mooie” endo
- Pijler voor een brug
- Wortelstift
- Parafuncties/ knarsen

20



21

...Sommigen zeggen dat er meer VRF zijn ...

Zijn er echt meer gefractureerde elementen de laatste jaren ?

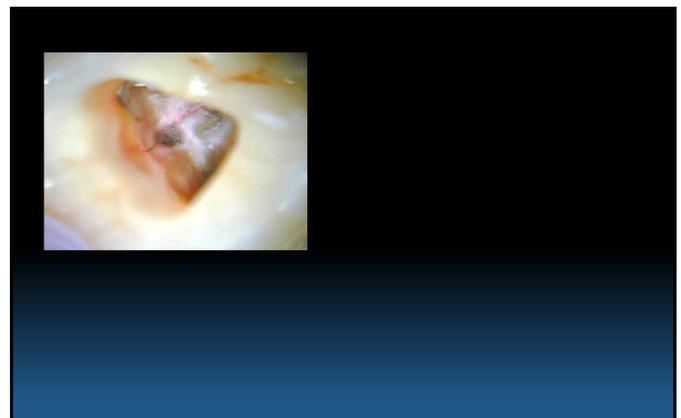
22

Misschien ZIEN wij de fracturen beter...?

Operatie microscoop

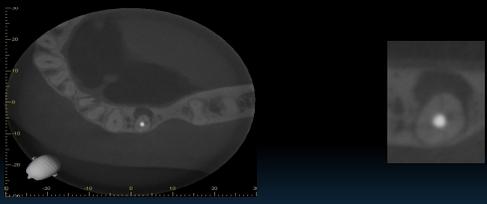
CBCT

23



24

**CBCT**



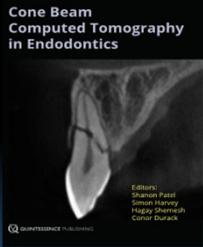
**Detection of VRF in endodontically treated teeth by a CBCT**

**Hassan et al. JOE 2009**

25

The detection of VRF in root filled teeth with periapical radiographs and CBCT scans.

“...periapical radiographs and CBCT were not accurate in detecting the presence and absence of simulated VRF”



**Patel et al. IEJ 2013**

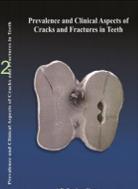
26

Diagnosis of VRF by CBCT in Root-filled Teeth with Confirmation by Direct Visualization: A Systematic Review and Meta-Analysis.

“CBCT imaging is still not a good tool for diagnosing VRFs in root-filled teeth compared with direct visualization”.



Promotie : 2022



**JOE 2021: PradeepKumar et al.**

27



**Misschien zijn wij meer bewust?**

Redenen voor VRF tijdens de behandeling

- Instrumentatie (Onnink et al. 1994, Shemesh et al. 2008)
- Hypochloride (Sim et al. 2001)
- Anatomie (Wu et al. 2004)
- Post-placement (Kishen 2006)
- Laterale compactie ? (Meister et al. 1980, Shemesh et al. 2009)

28

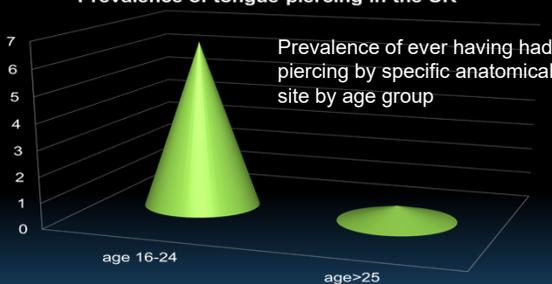


**Misschien zijn er andere redenen?**




29

**Prevalence of tongue piercing in the UK**



Prevalence of ever having had piercing by specific anatomical site by age group

| Age Group | Prevalence |
|-----------|------------|
| age 16-24 | ~6.5       |
| age >25   | ~0.5       |

**Bone et al. BMJ 2008**

30



Misschien door onze modern technieken zijn er meer fracturen?

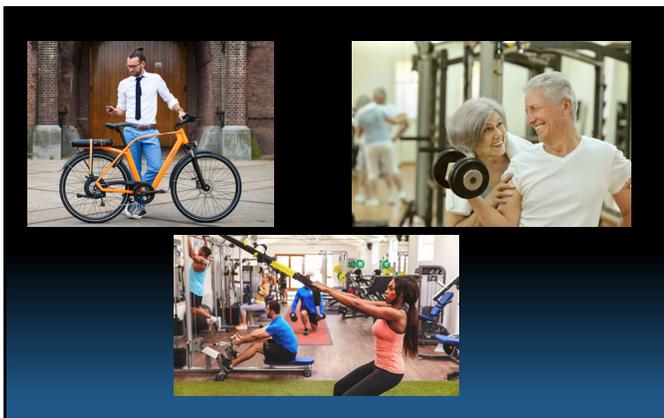
Comparison of dentinal crack incidence and of post removal time resulting from post removal by ultrasonic or mechanical force.

**Altshul et al. 1997 JOE**

31



32



33



34



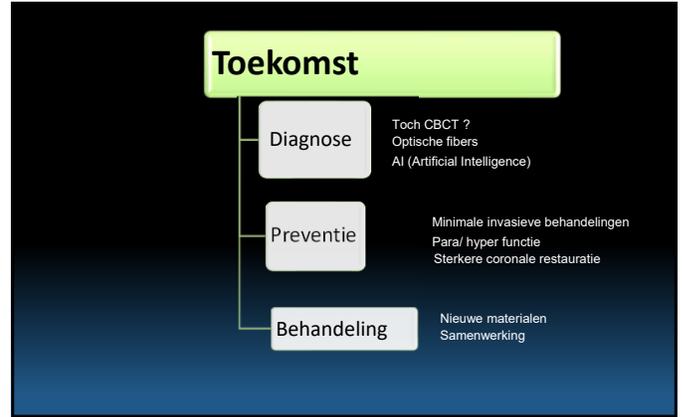
35

- De diagnose van verticale wortelfractuur is vaak moeilijk omdat de fractuur zelf niet te zien is, in tegenstelling tot horizontale wortelfractuur
- De combinatie van solitaire diepe pocket, fistel en laterale laesie in een endodontisch behandeld element kan helpen met de diagnose.
- Andere factoren die de kans op fractuur kunnen beïnvloeden zijn : "Hoge", "dubbele" fistel en parafunctionalities
- CBCT is vaak geen goede diagnostische methode om VRF te diagnosticeren.

36



37



38