

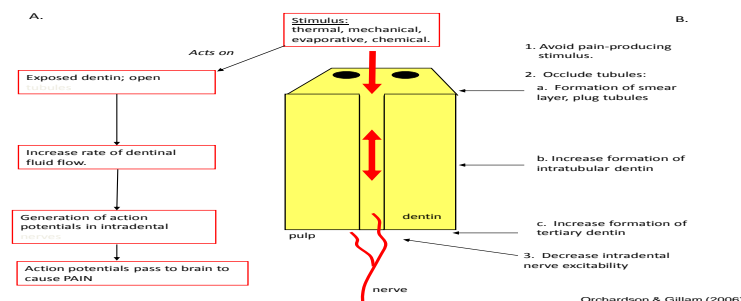
## Effects of 10% and 15% CP Bleaching Procedures on Tooth Sensitivity –A Systematic Review

**PROBLEM :** Tooth whitening was used for over one hundred and fifty years. The question concerning the whiteness of teeth is a complex one since tooth whiteness will vary from individual to individual, and is also dependent on the age of the individual and culture etc. Tooth whitening following treatment may also be dependent on the type of whitening system used to whiten the teeth. There are a number of side-effects to the process and these include tooth sensitivity and gingival irritation. Normally these side effects should resolve after approximately 48 hours although in extreme situations this may last for several months

**AIM:** To systematically review the available published literature until 31 December 2013 in order to identify all relevant studies for inclusion & to determine whether was any evidence demonstrating that application of 10% & 15% carbamide Peroxide resulted in tooth whitening procedures resulted in dentine sensitivity (DS).

### INTERVENTION:

- A Search strategy was employed in order to identify all relevant studies, until 31st December 2013.
- Relevant studies were identified by searching two major electronic databases : Ovid MEDLINE and PUBMED
- Hand searching of reference list of articles was also performed.
- Selection criteria used for inclusion/exclusion of studies based on: The type of studies, type of participants, type of interventions and type of outcome measures.



*Outline of the hydrodynamic mechanism by which stimuli activate intradental nerves to cause pain*

### RESULTS:

- Seven studies were included in this systematic review
- The studies included essential features of clinical studies namely: randomized group, placebo controls, and double-blind.
- Drop-out rates were obtained from two of the studies
- Only three of the studies reported tooth sensitivity at the baseline visit.
- Only two of the studies mentioned the exclusion criteria.
- The reported evaluation of DS during tooth whitening procedures was based on the subjective response of subjects.
- One of the problems in evaluating DS following tooth whitening procedures was the lack of homogeneity in study design and conduct when comparing the results from the included studies.

### CONCLUSIONS:

- Tooth whitening procedures may adversely affect hard, soft tissues & dental pulp.
- Effects generally are mild and transient in nature.
- Whitening solutions with greater than 10% carbamide peroxide appear to cause more tooth sensitivity in the study participants
- Studies using 10% carbamide peroxide reported two main side effects; tooth sensitivity and gingival irritation, although sensitivity was more prevalent than gingival irritation, both were transient in nature and disappeared at the end of the treatment.
- There were no clinical measurements or assessment of tooth sensitivity in any of the included studies, reporting of sensitivity was by non-clinical methodology such as diaries or questionnaires.
- The results from this systematic review were inconclusive due to limited number of included studies
- Couldn't accurately evaluate the incidence or prevalence of tooth sensitivity in these studies

### NEXT STEPS:

- Further research is required using recommended methodology for evaluating tooth sensitivity to determine the true extent in terms of prevalence or incidence of tooth sensitivity during the tooth whitening process and to determine the effectiveness of desensitizers in preventing or reducing tooth sensitivity.