

# Summary of: Are alcohol containing mouthwashes safe?

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### FULL PAPER DETAILS

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Alcohol (ethanol) is a constituent of many proprietary mouthwashes. Some studies have shown that regular use of such mouthwashes can increase the risk of developing oral cancer. Recently, the evidence has been reviewed by two separate authors. The conclusions from these reviews are conflicting. In this paper, we reconsider the epidemiological evidence linking alcohol containing mouthwashes with an increased risk of oral cancer. The evidence is considered in terms of sample size, strength of association, confounding variables and data collection. In addition, clinical studies comparing alcohol *versus* non-alcohol mouthwashes are evaluated. The evidence suggests that the alcohol component of mouthwashes affords little additional benefit to the other active ingredients in terms of plaque and gingivitis control. In view of this outcome and the hypothetical risk of oral cancer, it would seem prudent that members of the dental team advise their patients accordingly.

### EDITOR'S SUMMARY

While the subject of this paper deals specifically with the question posed in its title, it also touches on other, major questions thrown up by research in general, especially in the field of health related products, claims and treatments.

Whether we consciously calculate the risks of the activities we chose to undertake on a regular basis or not, the relativity of benefits (perceived or real) compared with disadvantages can range from being very obvious to completely unclear. They may also change under different circumstances. Running across a busy road is obviously very dangerous but in certain situations we calculate that the consequences of not doing so may be more serious still; dashing to catch a bus which if missed would cause all manner of follow-on problems. Hundreds of checks and balances fly through our brains at such times and ultimately it is up to each of us to choose what is best for us at a given time and place.

An essential element of this decision making process is knowledge based on information and experience. Thus, as

patients we expect to be informed of the 'truth' about treatment options and preventive strategies, while as health professionals we understand that meaningful consent is reliant on us providing those in our care with as much relevant detail as possible to enable rational decision making.

Two problems which arise and that are pertinent to the controversy over alcohol containing mouthwashes are, how robust is the current evidence linking their use with the development of oral cancer, and to what extent does this behove us to guide our patients accordingly? Seemingly, the jury is still out on the association, linkage and possible causality between the two as the evidence is not clear one way or the other. Yet also to be resolved is whether any possible risk is 'worth it' when non-alcohol containing rinses are available.

On balance we have to say that at present we do not know and that that is the most honest report we can give to our patients, tempered with our individual opinions based on personal and professional assessment of benefit and risk.

The full paper can be accessed from the *BDJ* website ([www.bdj.co.uk](http://www.bdj.co.uk)), under

'Research' in the table of contents for Volume 207 issue 10.

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**IN BRIEF**

- Dentists need to be aware that there is a hypothetical risk for the development of oral cancer from repeated use of alcohol containing mouthwashes.
- The existing evidence to support or refute such an association has been the subject of two recent conflicting reviews.
- This paper critically evaluates the two reviews and further explores the data on the efficacy of the addition of alcohol to mouthwashes.

**COMMENT**

In 2006 there were 5,325 new cases of oral cancer in the UK,<sup>1</sup> representing an increase in the past 10 years of 42%. This rise, of almost epidemic proportions, is in part due to cigarette smoking, but there is also good evidence that a key factor is increased use of alcohol in younger persons.<sup>2</sup> Although this relates largely to alcoholic beverages it is also well established that ethanol itself may be carcinogenic, primarily through the actions of its primary metabolite acetaldehyde.<sup>3</sup> In view of these issues, is it right or proper for the dental profession to be advocating the use of mouthwashes that contain alcohol?

This is an area of heated debate and there have been two recent reviews that have looked at this issue and have come to different conclusions. In this paper, Werner and Seymour undertake a further analysis of these two review papers. Rightly, they point out that these were narrative reviews and therefore the level of evidence is weak; they also draw attention to further weaknesses in the papers and to the fact that there is conflicting interpretation of the previous literature. Overall the results are inconclusive. While there is clear evidence of the carcinogenicity of alcohol in cell or animal studies, the epidemiological evidence is weak. Even good case-control and cohort studies are complicated by confounding variables, largely related to other associated risk factors. Association is not causation and it is possible, for example, that an individual who

uses these mouthwashes on a regular basis may do so to mask the effects of tobacco and alcohol use.

A further key issue, however, is why do we need these mouthwashes at all? The authors acknowledge the proven value of mouthwashes in the reduction of plaque-related diseases and the benefits to oral health. But do these benefits outweigh even a small potential risk of a fatal disease? Their Table 2 presents quite convincing evidence that the benefits can be gained by similar mouthwashes that do not contain alcohol. It seems therefore that alternative, equally beneficial, mouthwashes are available and there can be no real justification for continuing to use products that may put patients at any increased risk of oral cancer. If this is not the case, then it is for those who wish to promote alcohol-containing mouthwashes to perform or fund research to establish once and for all whether or not the benefits outweigh the risks.

**Professor Paul Speight  
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**AUTHOR QUESTIONS AND ANSWERS****1. Why did you undertake this research?**

This research was undertaken to weigh conflicting statements on the association between alcohol containing mouthwashes and their risk of oral cancer. These statements have arisen from two recent reviews which have essentially used the same data. We investigated the question of alcohol containing mouthwashes in terms of efficacy and risk using an evidence-based approach. As mouthwashes are becoming increasingly important in oral health, we believe it is imperative that all members of the dental team and the public are aware of the possibilities that alcohol containing products may carry a small but hypothetical risk. As alcohol provides little or no additional benefits in terms of plaque and gingivitis control, it would seem prudent to recommend non-alcohol alternatives.

**2. What would you like to do next in this area to follow on from this work?**

It is quite clear that further studies to establish the nature and magnitude of the risks are required. Randomized controlled clinical trials would not be appropriate as the end-point could be the development of oral cancer. More cohort and case controlled studies on mouthwash usage and data from patients who have developed oral cancer would be helpful at this stage. We have an interest in pursuing the line of work in which scientific evidence is weighted using the evidence-based approach. Such an approach would ensure that any recommendations to improve chair side assistance for patients are evaluated in an unbiased and scientific way.