

Spinning Flossing Facts into Fictions

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If you don't like to floss, you'll be happy that some dentists are writing journal articles saying, "Only flossing by professionals has been proven to be effective at reducing cavities." But a look at the evidence behind that claim may actually get you to start flossing.

Where can you find the claims that the only effective flossing is done by professionals? Well, a February [2011 review](#) (1) by two Dutch dental researchers says: "High quality professional flossing performed in first grade children on school days reduced the risk of caries by 40%. In contrast, self performed flossing failed to show a beneficial effect." A [2006 review](#) (2) by an international group of dental researchers, also said: "Professional flossing in children with low fluoride exposures is highly effective in reducing interproximal caries risk."

The particular [study](#) (3) being summarized in both of those reviews was performed in 1973 and 74 on 118 first grade children in Dorchester, a small town north of Lake Erie, near London, Ontario. In one of the longest and most detailed efforts to determine if flossing could reduce cavities, the children in the study had teeth on one side of their mouths flossed each school day over a period of 17 months. This is the study that found dramatically fewer cavities in the flossed teeth when compared with those unflossed in the same child.

So who were the "professionals" who did the flossing? In the original article they are called only "research assistants." The authors described the training for these flossers as being based on the instructions in a [1972 booklet](#) (4). In order to delve into the "professional" secrets of flossing that seemed to go into their training, I reviewed a copy of that booklet at the National Library of Medicine in Bethesda, Maryland. Surprisingly, the flossing instructions, which covered only 5 highly illustrated pages, weren't professional at all, but amounted to a detailed explanation on how to floss that patients could be given at a dental office. For example, the instructions say that psychological reinforcement is essential to get patients to overcome their resistance to flossing and it suggests phrases such as "you are doing very well, in fact better than most of the first-time patients."

For more details on who did the flossing, I contacted one of the original researchers, Dr. David Banting, at Schulich School of Medicine & Dentistry, University of Western Ontario. He explained that the so-called “professional” flossers were mothers of various children in the school, who were available each day to do the flossing for the study.

Since the children were an average age of six years old, and the authors of the Dorchester study noted that children at that age generally are not competent flossers, the second part of the conclusion from the 2011 review - “self performed flossing failed to show a beneficial effect,” doesn’t make much sense. Reading this and other reviews makes clear that all available studies on cavity prevention by flossing were done in children below the age of 13. So, the most that the studies can be said to show is that “self performed flossing by children has failed to show a beneficial effect.”

Why hasn’t flossing been studied more in adults? One practical matter is that adults – if not in jail – are not likely to be available to be flossed every day. Also, if you rely on self reported flossing in adults, it’s not likely you’ll get much accurate information (when questioned by dentists or hygienists, people are famous for overestimating how much they floss), and variations in technique among grown-ups are likely to have a significant impact on effectiveness. So, young children have served as a consistent, controlled population. The Dorchester study used trained moms to provide consistent flossing on half of each child’s teeth. The evidence provided by the study showed clearly that regular flossing reduced cavities by about 40%.

That’s what the study showed. It didn’t show that “professional” flossers had better results than, shall we say, “volunteer” flossers. It didn’t compare one group of flossers with another, so describing those flossers is a delicate task, which can easily mislead. Simply stated, however, the original findings indicate that children would get fewer cavities if competent adults flossed their teeth when they’re too young to do their own flossing.

However, this isn’t the sort of conclusion you’ll find in the dental journals. As was pointed out, recent review articles emphasized the effectiveness of “professional flossing.” This transformation from detailed experimental findings to what amounts to an unfounded rumor about the power of “professional” flossing is especially ironic because it was published in two review articles that were searching for all available research evidence to evaluate the effectiveness of flossing. Both of the cited reviews are part of a growing emphasis on “evidence-based” practices in dentistry and medicine.

Despite an avowed demand for well done test results, the final conclusions of scientists discussed here appear to be as fallible as what might be found in any summarized information among friends and the media. Explaining the confusions in the scientific literature in this example may have more to do with underlying confusions that easily enter all written and verbal communication.

There is a old game called “Rumors” where a phrase is first written down and then whispered from person to person in a small group. The last person is asked to repeat what he or she heard and that is compared to the original written version. The distortions introduced into the original phrase can be very funny. But it’s not so funny when we find the same routine going on among scientists, doctors or dentists.

However, it’s important to keep in mind that demands on the time and resources among health professionals often limit a detailed review of primary reports. One study may say, x did y, but the next summary of that finding can easily become “x does y” and suddenly we have a universal fact, but it’s a “universal fact” that was based on only one experiment that [no one may ever repeat](#). (5)

The appeal of evidence-based care is superficially very attractive, but there always remain underlying questions: What does the fundamental evidence really demonstrate? And, when we have evidence for or against a practice – even one as simple as the effectiveness of flossing - how good is the evidence?

Our legal system always requires evidence to convict someone of a crime before doling out punishment. In too many cases, however, it has turned out that bad or inadequate evidence was used to judge guilt, and only after years, and often happenstance, has that become clear for some convicted prisoners.

When it comes to flossing, the limited evidence we have doesn't really say anything about “professional” flossing, but it does say flossing can reduce cavities. Floss on!

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