All that glistens is not gold! Quantitative and qualitative analysis of systematic reviews in periodontology

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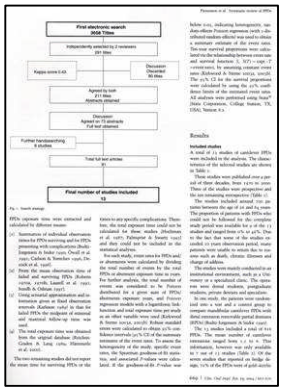
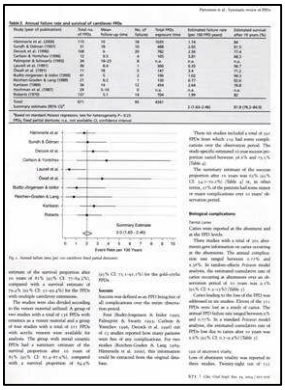
Aim

In medicine and dentistry, systematic reviews on explicit clinical questions appear at the top of the hierarchy of evidence (see: **www.cebm.net/levels_of_evidence.asp**) . Thus, dentists should know the reviews that are relevant to their specialty (Fig. 1). However, since the quality of systematic reviews may vary greatly, one should not rely on them blindly (Khan et al. 2004).

The aim of this study was to identify all systematic reviews and meta-analyses published until December 2005 in periodontology, and to perform a qualitative assessment of their levels of evidence.

Fig. 1: Example: Pjetursson BE et al.: A systematic review of the survival and complication rates of fixed partial dentures after an observation period of at least 5 years – IV. *Clinical Oral Implants Research* 2004;15:667-676





Material and Method

A systematic search was carried out in the following electronic databases: Cochrane Library, PubMed, Embase, and Medpilot <www.medpilot.de>. The databases of the dental journals of the Deutsche Ärzte-Verlag <www.dzz.de> and the Quintessenz-Verlag <www.quintessenz.de> were also considered. Additionally, two independent reviewers handsearched selected German-language journals: Schweizer Monatszeitschrift für Zahnmedizin, Deutsche Zahnärztliche Zeitschrift, Stomatologie, Zahnmedizinische Mitteilungen, and Parodontologie.

All identified systematic reviews were analyzed according to a modified version of the QUOROM statement. The modification, which was made in collaboration with the German Cochrane Centre, involved (a) the expansion of the 8 given questions into 15 more specific questions, and (b) the introduction of a grading system for each of the modified questions (Table 1).

A review could yield between 0 and 30 points (0 to 2 points for each question). Reviews with 23-30 points (75-100%) were rated as having high quality, with 16-22 points (50-74%) as acceptable quality and with 0-15 points (0-49%) as poor quality.

Result and Conclusion

Ninety-two systematic reviews were identified: 4 were of high, 66 of acceptable, and 22 of poor quality. Hence, periodontologists should be aware of the somewhat surprising fact that high-quality systematic reviews are scarce, as it has been noted for dentistry in general (Glenny et al. 2003, Richards 2004).

Tab. 1: Modified QUOROM Statement (German Cochrane Centre, Freiburg)

Questions	☺ (2)	😐 (1)	☹ (0)
01 - Explicit clinical question asked?			
02 - Explicit search strategy used?			
03 - Electronic databases searched?			
04 - Handsearch performed?			
05 - Language restrictions?			
06 - Second reviewer involved?			
07 - Inclusion and exclusion criteria defined?			
08 - Process documented? (Trial flow)			
09 - Level of evidence of the analyzed studies assessed ?			
10 - Established statistical tests used?			
11 - Statistical heterogeneity assessed?			
12 - If performed: Statistical correct subgroup analysis maintained?			
13 - Simple summary results presented?			
14 - Results put in right clinical context?			
15 - If performed: Subgroup analysis put in right clinical context?			
Sum			
Total amount			
Percent			

Literature

Glenny AM, Esposito M, Coulthard P, Worthington HV. The assessment of systematic reviews in dentistry. Eur J Oral Sci 2003;111:85-92.

Khan KS, Kunz R, Kleijnen J, Antes G. Systematische Übersichten und Meta-Analysen. Ein Handbuch für Ärzte in Klinik und Praxis sowie Experten im Gesundheitswesen. Springer, Heidelberg: 2004, p 3.

Richards D. The quality of systematic reviews in dentistry. Evid Based Dent 2004;5:17.