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Dentistry — Classification of tooth restorations preparation

Médecine bucco-dentaire — Classification de la préparation des restaurations dentaires

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Introduction

A classification of the location and depth of preparations made prior to the placement of tooth restorations supports the development of a consistent basis for the comparison of restorative materials and of decision support tools for the selection of restorative materials.

The traditional classification of carious lesions based on tooth type and lesion site was proposed by GV Black when restorative materials were limited to materials such as amalgam and gold.

While there is a widely recognized classification of cavities, that of GV Black, that classification dates back to a time when metallic materials were the only restorative options available. While attempts have been made to apply that classification to restoration, currently, there is no agreement on a classification of tooth preparations made for the placement of restorations.

Newer adhesive restorative materials and contemporary operative instrumentation better preserve sound tooth structure and offer new treatment possibilities concerning the restoration's location and depth. Standardizing the terminology used to describe these two parameters will provide a consistent basis for considering modern restorative materials' clinical use.

That development has been widely discussed in dental sciences. Various articles have been published on that topic without bringing up a standardized solution for a classification of lesions in relation to restorative needs and usage of materials. The correct diagnosis of hard tissue defects in human teeth plays an essential role in preserving remaining natural tooth structure and in optimising the longevity of the restoration.

The standardization of the terminology used to describe these two variables, depth and location, will provide a consistent basis for considering modern restorative materials' clinical use. This internationally accepted classification of restoration used to treat hard tissue defects in teeth may be used to specify restorative materials' intended use when documented in product instructions.

Dentistry — Classification of tooth restorations preparation

1 Scope

This document establishes a system for classifying the location and depth of human tooth restorations preparations.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 1942, *Dentistry — Vocabulary*

ISO 3950, *Dentistry — Designation system for teeth and areas of the oral cavity*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 1942, ISO 3950 and the following apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

3.1
preparation
result of the procedure used to render the human tooth in a form suitable for receiving and retaining a restoration

Note 1 to entry: This does not always require an operative restoration and preventive treatment such as resin infiltration is included.

3.2
core
main, central structure of the tooth, originally covered by enamel

Note 1 to entry: Core build-up is the restoration made to provide a retentive base for a prosthetic crown.

4 Classification

4.1 Location of preparation

For the purposes of this document, tooth preparations made prior to the placement of a restoration are classified as follows according to the location of the preparation on the tooth:

— Class 1: single surface occlusal, facial or lingual/palatal and posterior proximal sites without occlusal extension;

— Class 2: posterior proximal sites with occlusal extension;

— Class 3: anterior proximal sites without incisal involvement;

— Class 4: anterior proximal sites including an incisal edge;

— Class 5: gingival sites on the facial or lingual/palatal surface;

— Class 6: cusp tips;

— Class 7: core.

4.2   Depth of tooth restoration preparations

For the purposes of this document, a restoration preparation in a human tooth is classified into seven depths according to the portion of specific structures that are penetrated at its deepest extension:

— E 1: outer half of enamel;

— E 2: inner half of enamel;

— D 1: outer third of dentine;

— D 2: middle third of dentine;

— D 3: inner third of dentine;

— P 1: pulp chamber;

— P 2: pulp chamber and coronal access section(s) of root canal(s).

5   Recommendations

The classification specified in this document should be used in the following cases:

a)   manufacturer's instructions for use, in order to specify a restorative material's intended application,

b)   manufacturer's catalogue,

c)   other applications.

Bibliography

[1] Black GV *A work on operative dentistry; The technical procedures in filling teeth. Medico-Dental Publishing Company, Chicago,* 1908

[2] Hickel R., Roulet J.F., Bayne S. et al., Recommendations for conducting controlled clinical studies of dental restorative materials [published correction appears in Clin Oral Investig. 2008 Mar;12(1):97]. Clin. Oral Investig. 2007, **11** (1) pp. 5–33. DOI:10.1007/s00784-006-0095-7

[3] Hickel R., Peschke A., Tyas M., Mjör I., Bayne S., Peters M. et al., FDI World Dental Federation: Clinical criteria for the evaluation of direct and indirect restorations—Update and clinical examples. Clin. Oral Investig. 2010, **14** (4) pp. 349–366

[4] Mount G.J., Hume W.R., A new cavity classification. Aust. Dent. J. 1998, **43** (3) pp. 153–159. DOI:10.1111/j.1834-7819.1998.tb00156.x

[5] Wolff Mark S. et al. *A 100-Year Journey from GV Black to Minimal Surgical Intervention. (*2007*) Compendium of continuing education in dentistry 28(3):130-134. 2576729x*

[6] Fisher J. *A New Model for Caries Classification and Management: The FDI World Dental Federation Caries Matrix. The Journal of the American Dental Association 143/*2012 *(6): 546-551. 0002-8177*

[7] Bulbuk O., Bulbuk O., Rozhko M., A New Cavity Classification LOV/DD: An Original Hypothesis. Dent Hypotheses. 2020, **11** pp. 24–27

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