

**RESULTS:** The teeth most frequently affected by trauma were the central incisors, followed by the lateral incisors, the lower incisors and canines. The most frequently type of injury involved periodontal tissues.

Quite almost 80% of patients had a badly oral hygiene and parents had no any professional information about it.

From the literature the data related to deciduous dental trauma was very limited, especially about prognosis.

Patients required an individual approach that is appropriate to every type of injury (intrusion, extrusion and avulsion) and to the compliance of the individuals. Each patient was examined and the follow-up was planned in a careful way, holding parents responsible, who were involved in the planning of subsequent check up and control any discoloration, swelling or fistulas which can occur. This seems to be the most effective method for the follow up of deciduous dental trauma and the patients have demonstrated their satisfaction. This kind of approach seems to be clinically useful.

**CONCLUSIONS:** The way we follow deciduous dental trauma allowed us to hold parents responsible. Indeed they become able to control clinical signs of trauma complications and the instructions we gave allowed them to gain a better observation and to intervene more promptly. We think that this way of managing trauma affecting deciduous teeth is the method to ensure the best treatment, which is more appropriate for children and permits the avoidance of check-ups, a better management of the appointments, and to contain costs. Moreover in this way we can ensure a better assistance despite of the wide catchment.

It's increasingly clear the complete lack of information regarding both oral hygiene and simple ways to prevent dental trauma.

## Application of nanotechnology in pediatric dentistry

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**BACKGROUND:** The aim of this work was to study and produce a dental adhesive with antibacterial properties through the use of micro and nanometric fillers based on graphene.

**METHODS:** Graphene is the name given to a flat monolayer of carbon atoms tightly packed into a two-dimensional (2D) honeycomb lattice, and is a basic building block for graphitic materials of all other dimensionalities.

It is extremely durable and hard (100 times more than steel), transparent and flexible. In addition, it present, at room temperature, an electrical conductivity superior to any other substance and in recent years he has shown raised interest also in the biomedical field.

In the present study it was developed and produced an dentin/enamel adhesive with antibacterial properties thanks to the introduction of the graphene nanoplatelets (GNP) used as filler, starting from a common commercial adhesive used in dentistry and its widely-known properties.

The GNP have been made from expanded graphite (EG),

which in turn was produced from graphite intercalation compounds via rapid evaporation of the intercalant at elevated temperatures.

The GNP thus obtained, have been incorporated into the commercial adhesive with the technique of solution processing.

Antibacterial tests were carried out treating our experimental adhesive with bacterial strains of *Streptococcus mutans*. The antimicrobial effects of the adhesive were analyzed at both zero time 0 and after aging (1 week). Furthermore, tests of resistance to microtensile were carried out.

**RESULTS:** Tests have shown that GNP present toxicity on microorganisms, thanks to mechanic interaction by wrapping and trapping bacteria. Furthermore, they show also an antibiofilm effect causing fractures in the structure of the same biofilm. The produced material shows a high efficacy the first days of application in which the bacteria mortality was detected by 100% and then the stoppage of biofilm growth. After the aging of the material concordant results were obtained, with a slight decrease of bacteria mortality as the hours passed. The mechanical tests analysis, in order to study the binding strength in the adhesive by GNP introduction, has shown a value by 29,1 MPa, slightly inferior to the value shown by the corresponding commercial adhesive. The given testing value is anyway included within the average of values referred to dental adhesives currently on the market.

**CONCLUSIONS:** The undertook study permitted to develop an enamel dental adhesive with innovative antimicrobial properties. The main component of such properties is GNP, which has shown also a high biocompatibility on both human and animal cells. By analyzing bacterial cells in suspension by the method of Colony Forming Units (CFU), it was observed that GNP not only have toxicity on single cells, but also an antibiofilm effect interfering with the vital cycle of the same, thus inhibiting its development. Mechanical tests have shown excellent characteristics of the experimental adhesive so much that it can be considered virtually competitive.

## A conservative treatment of a sub-gingival complicated crown-fracture. A case report

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**BACKGROUND:** Apply the more conservative treatment in a dental trauma of a young patient to postpone prosthetics rehabilitation.

A fracture of anterior teeth is a relatively common outcome of trauma to the teeth. If the fragments are recovered by the patient and brought to the dental office with reasonable time, into an appropriate storage medium, the fragments may be reattached to the remaining tooth structure.

**METHODS:** We describe the case of 19 years old male patient who presented a complicated crown fracture with subgingival margin of 1.1 occurred at school.

The patient came to our attention few hours after the trauma with the dental fragment congruous. After the radiographic examination, urgency treatment with pulpectomy and Ca(OH)<sub>2</sub> temporary medication was performed. One week later we proceeded with the final endodontic therapy of the tooth and with the reattachment of the fragment. Although the fragment extended subgingivally the fragment reattachment