The aim of this investigation was to locate and find out how often cracks happen with amalgam restorations. On order to determine this 30 examines were examined (21 male and 9 female), aged from 16 to 42 years. Clinical examination resulted in 23 out of 30 examined patients (159 teeth) had cracks. Cracks were drawn on formerly prepared schemes. Results showed that: 1. 48% of cracks were in primary amalgam restorations; 2. cracks were localized buccally (31%) and distally-proximally (26%); 3. nearly half of all Black Class I and II restorations had cracks; 4. cracks were found in upper molars (75%) and especially in first ones (80%); 5. 61% of examines with cracks were distally-proximally; 6. There were no statistically significant differences between male and female examines; 7. Frequency of cracking raises with age. Cracking is bound with properties of amalgam, influence of loading on amalgam restorations and other factors. This investigation lead us to conclude that every second patient with an amalgam restoration had a crack and better diagnosis and repairing is needed to prevent further cracking.

Klinička uporaba vlaknima ojačanih kompozita

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Uporaba vlaknima ojačanih kompozita dobila je na važnosti tek posljednjih nekoliko godina, premda se o njezinoj vrijednosti u stručnim stomatološkim radovima pisalo već u ranim šezdesetim godinama prošloga stoljeća. Vlaknima ojačani kompoziti mogu se razvrstati prema vrsti vlakana, njihovu smjeru, te prema obradi organskom smolom. Polietilenska, staklena, kevlar i ugljična vlakna mogu biti u obliku pojedinačnih ravnih valkana ili u pletenom obliku. Čimbenici o kojima ovisi čvrstoća vlaknima ojačanih kompozita jesu smjer vlakana, množina vlakana, obloženost vlakana organskom smolom, svezivanje vlakana s organskom smolom, te sama svojstva valkana i organske smole. U restaurativnoj stomatologiji upotrebljavaju se vlakna s jednostrukom, dvostrukom i višestrukom usmjerenošću. Vlakna imaju ulogu učvrsne osnove samo u onim slučajevima u kojima se sila opterećenja prenosi s kompozitne osnove na vlakna. U slučaju nastanka pukotina i stvaranja praznoga prostora između vlakana i kompozitne osnove, smanjuje se sposobnost primanja opterećenja. Nedostatna obloženost vlakana organskom smolom uzrokuje probleme povećanoga zadržavanja vode. To slabi mehanička svojstva i/ili stvara nakupine kisika što inhibira radikalnu polimerizaciju organske smole, a time i nastanak ostatnoga monomera od čega može nastati upalna reakcija na sluznici usne šupljine. Novi vlaknima ojačani kompoziti mogli bi biti sredstvo izbora za izradbu udlaga, bezmetalnih i nekeramičkih nadomjestaka s izvrsnom estetikom i dugotrajnošću nadomjestka.

The Clinical Use of Fiber-Reinforced Composite

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Fiber reinforcement has been discussed in the dental literature since the early 1960s, althogh the more recent availability of commercial products is only now leading to recognition and general clinical use. Fiber-reinforced composite can be described by fiber type and fiber orientation, in addition to the presence or abscence of preimpregantion with a resin. Polyethylene, glass, kevlar and carbon fibers have all been used in either unidirectional or woven fiber orientations. The factors affecting the strength of fiber-reinforced composite are orientation of fibers, quantity of fibers, impregnation of fibers with the matrix polymer, adhesion of fiber to the matrix polymer, properties of fibers vs. properties of matrix polymer.In dental reconstructions, undirectional and bi- or multidirectional fiber orientation is used. Fiber reinforcement is only successful is the loading force can be transferred from the matrix to the fiber. In the case of voids between the matrix and the fiber, the load-bearing capacity of fiber-reinforced composite decreases. Poorly impregnated fibers cause another proble: increase in water absorbtion, which reduces the mechanical properties, and oxygen reserves, which inhibits radical polymerization of the polymer matrix and increases the residual monomer content which can lead to irritant reactions in the oral mucosa. A new fiber-reinforced composite provides the potential for fabrication of splints, metal-free, ceramic-free prosthesis with potential for long-term durability and excellent esthetics.