

distances of elderly group decreased between both muscles on working side and the masseter muscle on non-working side. We concluded that activity patterns of masseter muscles on non-working side in the elderly without tooth loss came to be similar to masseter and anterior temporal muscles on working side.

01-5

## Modern Development in Denture Labeling

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**Contents :** Denture labeling is an important tool in the identification for deceased bodies in the events of war, crime, air crash, civil commotion and other traffic accidents. Present denture labeling technique use characters of a larger font size which prevent more detailed vitals information to be included in the label. This can lead to the delay in the processes of identifying the deceased bodies. This paper presents a method of overcoming the problem by using micro-label.

Two micro-labeling techniques developed in the Faculty of Dentistry, University of Malaya were presented. These are the graphical image micro labeling and the computer-print micro-labeling techniques. Both techniques are easy to carry out that requires only material and equipment which can be found in most institutions and laboratories.

01-6

## Experimental Study on Dimensional Changes of Three Kinds of Gypsum in Different Impression Materials

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**Objective :** To study the effect of impression material on the precision of working models.

**Methods :** Three kinds of model materials (general stone, hard stone and superhard stone) were poured into four kinds of impressions respectively and their dimensional changes were tested. Dimensional change rates were calculated and analyzed to predict the precision of working models.

**Result :** General stone shrank in the metal die while expanded extensively in the silicone rubber, alginate and agar die. The setting expansion rate of general stone in different model dies differs significantly and was unstable, which is not suitable as working modes. Setting dimensional change rate of hard stone in all the four dies were less than 0.15%, especially low in metal and alginate dies, which is stable and suitable for making general working cast. While showing an apparent expansion trend in metal die and an obvious shrinking behavior in agar die, setting dimensional change rate of superhard stone in silicone and alginate dies were stable and less than 0.10% which can be used for precision casts.

Surface fineness of casts formed in agar impressions by hard and superhard stone were not as good as expected which can not be used into cast duplication. General stone has the highest expansion rate as well as good surface fineness, so it can be improved to be appropriate duplication materials.

**Conclusion :** This study indicated that the dimensional change rates of stone are related with the corre-

sponding elasticities of impressions and the compatibility of stone.

**Key words :** impression material, model material, dimensional change

01-7

## Bond Strength of Reinforced Indirect Composite Resins to Dental Alloys

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Recently, new indirect composite resins as a substitute of ceramic have been developed. This study was undertaken to evaluate the shear bond strength of the reinforced indirect composite resins to dental alloys. Three different composite resin systems (Artglass<sup>®</sup>, Sculpture<sup>®</sup>, Targis<sup>®</sup>) and ceramic (VMK 68<sup>®</sup>) were bonded to Ni-Cr-Be alloy (Rexillum III<sup>®</sup>) and gold alloy (Deva 4). All specimens were stored at 37°C distilled water for 24 hours and the half of specimens were thermocycled 2000 times at temperature from 5°C to 60°C. A Shear bond strength testing was carried out using a universal testing machine, and debonding surfaces were examined using the stereoscope and scanning electron microscope.

The results were as follows :

1. The shear bond strength of reinforced indirect composite resins to dental alloys were approximately half those of ceramic to dental alloys ( $P < 0.01$ ).
2. There was no significant difference in the shear bond strength among the several reinforced indirect composite resins ( $P < 0.05$ ).
3. Type of alloy did not affect on the bond strength of resin to metal, but the shear bond strength of ceramic to gold alloy was higher than that of ceramic to Ni-Cr-Be alloy ( $P < 0.05$ ).
4. The shear bond strength of Artglass and Targis to gold alloys were significantly decreased after thermocycling ( $P < 0.01$ ).
5. Sculpture showed cohesive, adhesive, and mixed failure modes, but Artglass and Targis showed adhesive or mixed failures. And ceramic showed cohesive and mixed failures.

Oral

01-8

## The Fractural Strength and Marginal Fitness of Reinforced Composite Bridge

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Fiber-reinforced composite (FRC) was developed to serve as structural component for dental appliance such as prosthodontic frameworks. A new FRC provides the potential for fabrication of a metal-free, excellent esthetic prostheses.

The purpose of this study was to evaluate the fractural strength and the marginal fitness of fiber-reinforced composite bridge in posterior region.

Sixteen bridges of each group, Targis-Vectris, Sculpture-Fibrekor, In-Ceram, were fabricated. All specimens were cemented with Panavia 21 on the master dies.