

# 熱重合 레진義齒床 修理時 破折面에 대한 處理方法이 수리 후 Transverse strength에 미치는 影響

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## Effect of Surface Treatment on Transverse Strength of Denture Repair When Heat Cured Resin Denture Base is Repaired

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### *Abstract*

The purpose of this study was to investigate the effect of surface treatment on strength of denture repair as influenced by repair resin.

Specimens were fabricated from VERTEX heat cured resin. Rectangular specimens(60 × 10 × 3mm) were prepared according to the manufacturer's instruction for mixing and packing the resin into molds.

Two methods of surface treatment were used and two methods of repair were also tested.

The transverse strength of the resin was measured before repair and after repair by AUTOGRAPH testing machine. Six specimens of each category were prepared for testing for a total of 24 specimens.

The mean value of the percent of recovery was calculated from the percent of recovery for six specimens.

The results were as follows :

1. The mean value of the percent of recovery of each category makes a significant difference statistically one another( $p < 0.01$ ), and " C " category, chloroform solvent-heat cured resin, has a better effect on repair strength than any other.
2. When no chloroform is used to treat the fractured surface there is no significant difference between the mean values of the percent of recovery influenced by the self curing resin and heat cured resin. But, when chloroform is used there is a significant difference between the two repair resins( $p < 0.01$ ).
3. When self curing resin repair is used there is no significant difference between repair with and without the surface treatment of chloroform. But, when heat cured resin repair is used the use of chloroform treatment become significant statistically ( $p < 0.01$ ).

# I. 緒論

可撤性 補綴物

義齒床

1-5)

可徹性義齒  
破折

破折强度

가

義齒 强度

가

再破折

舊

新  
新  
舊

新

stress가  
1,7)

形態形成 方法 新·舊  
强度

stress가  
6-20)

質  
가  
着力  
(etching)

가

形態學的, 化學的 性  
强度

21)

, 接

## II. 實驗材料 및 方法

### 1. 材料 및 器具

(1)

VERTEX, heat cured acrylic resin,  
DENTIMEX ZEIST, HOLLAND.

JET repair acrylic, self curing acrylic  
resin, Lang dental MFG. Co. Inc., USA.

(2) 石膏製品 . Dental plaster, SAMWOO  
CHEMICAL Co., LTD. KOREA.

(3) : Coe-Sep, tinfoil  
substitute, Coe laboratories, Inc., USA.

(4) Surface treatment solution :  
Chloroform, DUKSAN  
PHARMACEUTICAL Co., LTD,  
KOREA.  
distilled water

(5) Paraffin wax : SAMJUNG CHEMICAL  
Co., KOREA.

(6) Finishing instrument : denture bur.

(7) Press : Hydraulic press, YOSHIDA  
KOBATA GAUGE MFG. Co., LTD.

(8) Curing unit : HANAU Curing unit,  
HANAU engineering Co., Inc.

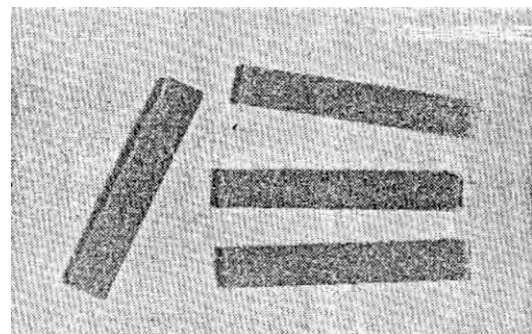
(9) Transverse strength testing machine :  
AUTO GRAPH, MODEL DSS-10T-5,  
SHIMADZU, JAPAN.

(10) Flask : , KOREA.

(11) Measuring device : GIANT VERNIER  
CALIPER.

### 2. 試片製作

熱重合 試片 製作  
paraffin wax 試片  
(60 × 10 × 3mm) 假試片  
( 1).



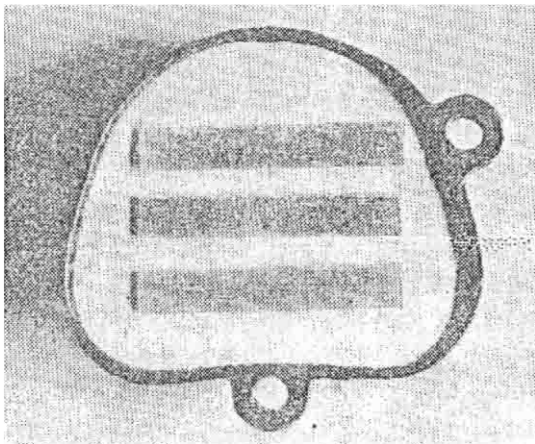
1. Paraffin wax 假試片

總義齒 wax  
wash  
法  
入  
加壓  
室溫

flask dental plaster  
假試片  
上·下函 分離  
flask內  
test closure  
flark curing unit  
( 2).

가 指示 使用  
陰型 press  
重合

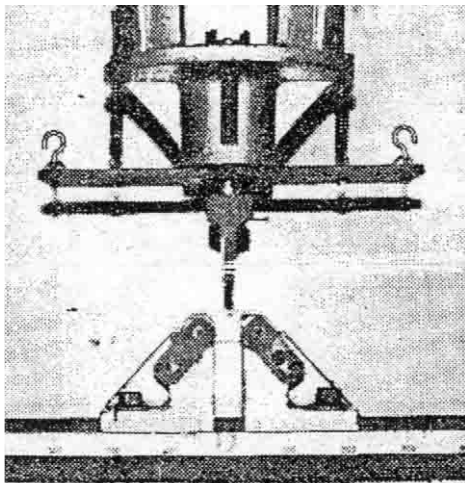
Flask 內 試片  
規格  
2  
3. Transverse strength 測定  
強度 testing machine  
가 50mm가  
testing machine plunger가  
Smm/min 荷重 加  
( 3).



1. Time etch

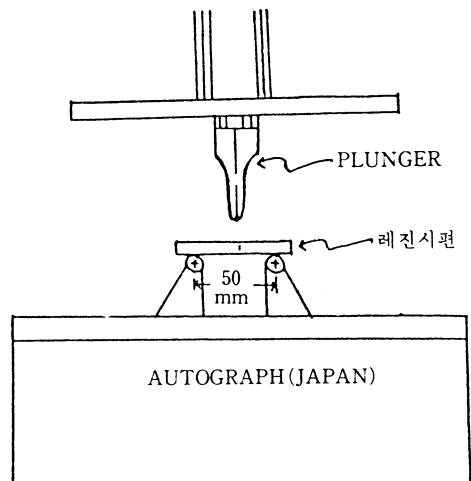
4. 破折面 修理方法  
破折  
dentur bur 切斷  
4).  
破折面 處理方法, (1)  
方法, (2)  
가  
. 修理 , (1)  
方法 , (2) 가

線  
2mm가  
(  
5  
flask 內  
陰型  
方法



(a)

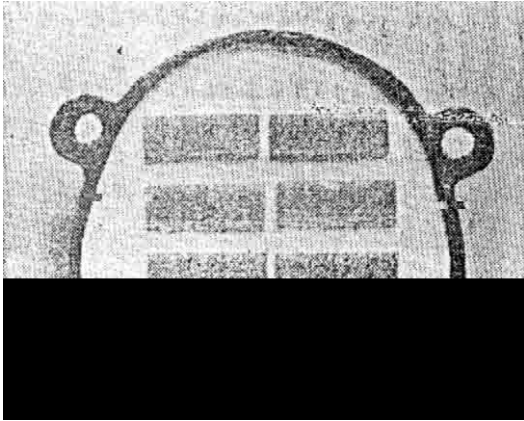
3.



(b)

AUTOGRAPH testing machine

### III. 結果 및 考察



4. 2mm가

方法 가

重合  
poult

denture bur stone

12

가 强度

群 6 24 試片

有·無 修理時  
transverse strength  
結果 1

strength가  
가  
群 前 47.4%  
群 前 40.6%

strength가  
群 前 74.9%,  
群 前 37.6%  
가 (P<0.01),  
2 가

3

修理時  
가  
群 transverse strength  
가 (P>0.05),  
가 (P<0.01).  
가

#### 1. Transverse strength of denture resin material

Group*	Denture resin	Mean transverse strength (kg/cm <sup>2</sup> ± SD)		Percent of strength recovery** (% ± SD)
		Before repair	After repair	
A	VERTEX	787.5 ± 34.05	372.2 ± 73.74	47.4 ± 10.00
B	VERTEX	725.5 ± 79.19	293.1 ± 38.87	40.6 ± 5.33
C	VERTEX	705.6 ± 34.00	526.4 ± 41.31	74.9 ± 7.92
D	VERTEX	733.4 ± 62.15	273.6 ± 36.69	37.6 ± 6.73

- \* A : distilled water, heat cured resin
- B : distilled water, self curing resin
- C : chloroform solvent, heat cured resin
- D : chloroform solvent, self curing resin

\*\* The mean value of the percent of recovery was calculated from the percent of recovery for six specimens

2. Analysis of variance\*

	평방향	자유도	불편분산	F	prob
표본간	5,158.0	3	1,719.33	34.339	P<0.01
표본내	1,181.4	20	50.07		
합 계	6,339.4	23			

\* The percent of strength recovery

3. Comparison between the groups\*

항목간	t값	prob
$\bar{X}_A - \bar{X}_B$	1.663	P>0.05
$\bar{X}_A - \bar{X}_C$	-6.724	P<0.01
$\bar{X}_B - \bar{X}_D$	0.733	P>0.05
$\bar{X}_C - \bar{X}_D$	9.120	P<0.01

\* The mean value of the percent of strength recovery

有·無群 가 (P>0.05),  
 有·無群 가 (P<0.01).  
 22 25) 可撤性 義齒 가  
 破折 原因 先行 再製作 義齒 修正保完  
 가 再製作 가  
 7,26) 가  
 , Shen<sup>1)</sup> Beyli<sup>7)</sup> 新 舊 가 新 가  
 方法 가 破折面 形態形成 6~20)  
 9,18) 가 가

가 , 가 化學的處  
 理, 가 가 ,  
 Shen<sup>1)</sup> Cagle<sup>6)</sup> , 修理部分  
 가 ,  
 Van der Waals力 陰  
 型 ,  
 , Shen polymethyl methacrylate(PMMA) 溶媒  
 5 破折面 形態形成時 ,  
 가 義齒床 Amin<sup>27)</sup> 裏製 ,  
 monomer가 penetrating network  
 加壓 餅狀(dough stage) 熱 加  
 加壓 硬化 가  
 monomer 義齒床  
 同質 ,  
 加熱 義齒床 軟化 ,  
 內部 strain 가 가 28,29)  
 가 人體 發癌物質

가<sup>30,31)</sup>, Shen<sup>1)</sup>  
 가<sup>31)</sup>  
 가

#### IV. 結 論

熱重合 義齒床 破折面  
 가 transverse strength  
 1) 有·無 處理 ( “ C ” )  
 가 )群  
 transverse strength 가 “ C ”  
 “ A ”, “ B ”, “ D ”群  
 群  
 (P<0.01).  
 2) strength 가 群 transverse  
 (P>0.05),  
 群 가 (P<0.01).  
 3) 가 有·無群 가  
 (P>0.05), 有·無群 가  
 (P<0.01).

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