

1. Andrian S. WHO communication about the epidemiology of caries in some regions of Romania. Oral communication in the Congress: Romanian-Belgium scientific days, Iasi, Romania, 2003
2. Pretty IA. Caries detection and diagnosis: Novel technologies: Journal of Dentistry 2006; 34:727-739
3. Christensen GJ. Tooth sensitivity related to class I and II resin restorations. JADA 1996; 127, 4: 495-498.
4. Chan KM, Tay FR, King, King NM, Imazato S, Pashley DH. Bonding of mild self-etching primers/adhesives to dentin with thick smear layers. Am J Dent 2003;16: 340-346
5. Tay FR, Pashley DH, Suh BI, Carvalho RM, Itthagarun A. Single step adhesive are permeable membranes. J Dent 2002;30:371-382
6. Summit JB, Robbins WJ, Hilton TJ, Schwartz RS. Fundamentals of Operative Dentistry; 2006: Direct posterior esthetic restorations 289-340
7. Jordan RE, Suzuki M. Posterior composite restorations. Where and how they work best. J Am Dent Assoc 1991; 122: 30-37
8. Manhart J, Huth KC, Chen H, Hickel R. Influence of the pre-treatment of occlusal pits and fissures on the retention of a fissure sealant. Am J Dent 2004;17(1):12-8
9. Fábio Renato Manzolli Leite; Ticiania Sidorenko de Oliveira Capote; Angela Cristina Cilense Zuanon Application of the total etching technique or self-etching primers on primary teeth after air abrasion Braz. oral res. vol.19 no.3 São Paulo July/Sept. 2005
10. Guirguis R, Lee J, Conry J. Microleakage evaluation of restorations prepared with air abrasion. Pediatr Dent 1999;21(6):311-5.
11. Hannig M, Femeirling T. Influence of air-abrasion treatment on the interfacial bond between composite and dentin. Oper Dent 1998;23(5):258-65. Ellis RW, Latta MA, Westerman GH. Effect of air abrasion and acid etching on sealant retention: an in vitro study. Pediatr Dent 1999;21(6):316-9.
12. Yazici AR, Kiremitçi A, Celik C, Ozgünaltay G, Dayangaç B. A two-year clinical evaluation of pit and fissure sealants placed with and without air abrasion pretreatment in teenagers. J Am Dent Assoc. 2006 Oct;137(10):1401-5
13. Inoue S, Vargas MA, Abe Y, et al. Microtensile bond strength of eleven contemporary adhesives to dentin. J Adhes Dent 2001;3:237-245
14. Labella R, Van Meerbeek B, Yoshida Y, et al. Marginal gap distribution of two-step versus three-step adhesive systems. Trans Acad Dent Mat 1998;77:910
15. Tay FR, Gwinnett AG, Pang KM, Wei SHY. Structural evidence of a sealed tissue interface with a total etch wet-bonding technique in vivo. J Dent Res 1994;73:629-636
16. Chan KM, Tay FR, King NM, Imazato S, Pashley DH. Bonding of mild self-etching primers/adhesives to dentin with thick smear layers. Am J Dent 2003; 16:340-346.

**S. Andrian, D. Apostolide, G. Pancu, O. Tanculescu, A. Georgescu**  
**ИССЛЕДОВАНИЕ ВЛИЯНИЯ МЕТОДОВ ПРЕПАРИРОВАНИЯ КАРИОЗНЫХ ПОЛОСТЕЙ НА**  
**МАРГИНАЛЬНОЕ СОЕДИНЕНИЕ ПРИ КОМПОЗИТНЫХ РЕСТАВРАЦИЯХ**

*Кафедра Терапевтической Стоматологии Медицинского Университета г. Иассы, Румыния*

**Аннотация:**

*Лечение кариеса жевательных поверхностей требует специальный терапевтический подход из-за характерных морфологических и клиничко-терапевтических особенностей этих зон. По актуальным методам для щадящего препарирования поверхностей можем использовать воздушно-водно-абразивный метод (Fluid-air-abrazion) или Prophjet. При реставрации композитами используется адгезивная моносистема VII генерации, которая оказывается имеет некоторые недостатки в сравнении с трёхэтапной системой. Цель нашей работы исследовать маргинальное адгезивное соединение при композитных реставрациях колориметрическим методом в разных клинических ситуациях, используя адгезивную моносистему VII генерации или ту же систему плюс дополнительное кислотное протравливание. При статистическом анализе результаты демонстрируют что маргинальное соединение значительно ухудшается когда используется один из двух методов применяемых нами совместно с дополнительным протравливанием эмали.*

**Ключевые слова:**

*кариес жевательных поверхностей, воздушно-водно-абразивный метод, адгезивная моносистема VII генерации, маргинальное адгезивное соединение*

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**M.-E. Antohe, A. Craciun, N.C. Forna**  
**BASIC RESEARCH REGARDING SILICONIC MATERIALS IN DENTAL**  
**MEDICINE**

*University of Medicine and Pharmacy "Gr.T. Popa", Faculty of Dentistry Iassy, Romania*

**Abstract:**

*This study regarding the fundamental research in silicone materials field used by facial prosthesis and implanto-prosthetic therapy. The aim of the study is concerned with the synthesis and analysis of a new siliconic material with various excess materials, these aspects being necessary because of the different types of underlying tissue. We tests in same condition the mechanical properties of new materials and examination the stress distribution on residual alveolar ridge New silicone based materials having a higher biocompatibility as compared with those commercially available have been prepared and used for improvement of the removable dentures' structure, but also for their lining.*

**Key words:**

*new siliconic material, mechanical properties, biocompatibility, facial prosthesis, implanto-prosthetic therapy*

**Introduction**

The terrible clinical reality of the total and subtotal edentulous seen from the impact on the patient's general status

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point of view, with extremely serious perturbations upon the body scheme, in relation with the variety of clinical situations and always influenced by present social aspects, all these are just a few directions that argue for the necessity of the present study which is aimed at optimising both the clinical and technological level, with the differentiation of the interrelation between the two sides of the prosthetics therapy.

The Fifth International Scientific Distance Conference "New Technology in Medicine - 2008", March, 2008



**Image 1.** Aspects of siliconic sample of various resilient materials

(1,2)

The variety of facial traumatism, the tumor pathology resulted in substace loss, are only part of the issues that leave their mark in a mutilating way upon the patients, modifying significantly and sometimes irreversibly their behaviour, from active and social to isolation, these aspects leading without a doubt to the need of diversification of the materials used in the prosthetics solutions for these clinical entities.(3,4)

**Purpose**

This study is aimed at the improvement of the biomaterials used in the field of entirely removable prosthesis quality. The essential lucrative directions regarding silicon materials with structural modifications and correspondent associations determine the elaboration of new prosthetic constructions that have an increased degree of confort in comparison with present stomatologic solutions.

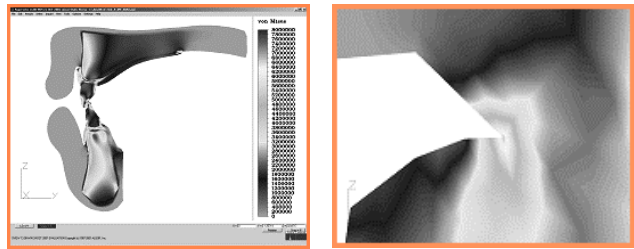
**Material and Method**

We tests in same condition the mechanical properties of new materials and examination the stress distribution on residual alveolar ridge

Un important direction of the study is concerned with the synthesis and analysis of a new siliconic material with various excess materials, these aspects being necessary because of the different types of underlying tissue.(Image1)

New silicone (synthesized in collaboration with the "Petru Poni" Institute of Macromolecular Chemistry , Iassy, Romania) based materials having a higher biocompatibility as compared with those commercially available ( Mollosil), have been prepared and used for improvement of the removable dentures' structure, but also for their lining. The polymeric matrix consisting in a high molecular weight dimethylmethylvinylsiloxane copolymer has been synthesized by cationic ring-opening copolymerization of the appropriate cyclic monomers (octamethylcyclotetrasiloxane and methylvinylcyclotetrasiloxane)(Table1)

Regarding tests of biocompatibility, the protocole of introducing test-tubes under the laboratory animals skin comprises the following: Animal species: Domestic Rabbit (*Oryctolagus cuniculus*), male, 2,5 kg; Anaesthetic: Neuroleptanalgesic: Time 1: Atropina 0,05 mg/kg underepidermic after 5 min; Time 2: Xilasine 3mg/kg intramuscular; After 15 min. Time 3 : Ketamine 20 mg/kg itramuscular



**Image 2.** The evaluation of the internal tension force for a lining with the siliconic material produced in collaboration with the „Petru Poni” Institute in Iasi

After 10 days a skin biopsy was made on the implanted areas to find out the momentary biocompatibility evaluation. The biopsy samples were fixed in formol and then subdued to histologic techniques and HEA colouring, in order to obtain permanent histologic samples.

**Result and Discussions**

The simulation methods are avanguardistic and absolutely mandatory in the stage precursory to the practical research steps, giving shape to ways of practical apliability. This way, the final results will be the more pertinent as they were obtained in the conditions of a double set of experimental methods which recreated the clinical situation to be analised.

The 2D analysis presents an advantage in regard of visualisation of the internal tensions in a section, unlike the 3D analysis, in space, which allows only the visualisation of the surface tensions of the system. (Image2)

In order to determine the experimental conditions, a simulator which respects both the mandibular cinematic and dynamic must be projected first.(Image3)

In this regard, some considerations of mandibular biomechanics nature must be made as the mandatory starting point for the projection of the simulator.

The role of the siliconic materials in the biologic integration is well known, but the structural modifications designed by usc an meet very high values of performance as far as the biocompatibility, chromatic range and sineque non condition in overcoming the facial congenital or achieved flaws are concerned, reaching the state of reconstructive art.

From the clinical point of view, 10 days after implantation we could observe the absence of any inflamatory reaction, sequestration tendency, a marker of body acceptance of the siliconic implant. The histologic samples underline the presence of normal collagenic formations, without the appearance of PMN ( polymophonuclear) in the case of synthesized silicones manufactured in collaboration with „Petru Poni” Institute.

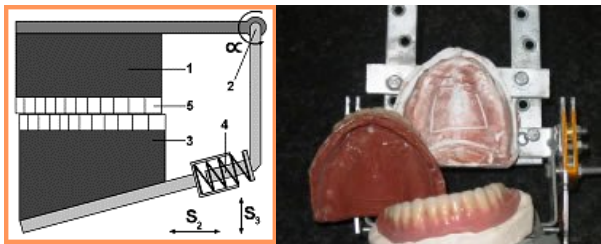
The microscopic aspects, marker of immediate biocompatibility, revealed a reduced limphoplasmocite infiltration, accompanied by sequestration through fibre tissue.(Image4)

General results at the implanting site of siliconic test-tubes with moderated and reduced composition of eogenol show that negative elements represented by giant cells, attributed to test-tube no.7 which contains siliconic elastomer without silver, are optimized by introducing silver in the same structure.

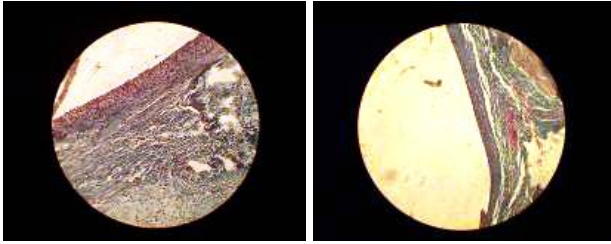
**Table 1.**

**The siliconic biomaterials parameters**

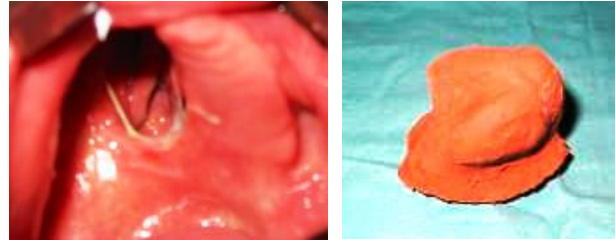
Variant	Longitudinal elasticity module E [Pa]	Poisson Coefficient	Roughness [µm]	Density [kg/m <sup>3</sup> ]
Variant 1	4.000.000	0.37	1	1100
Variant 2	2.000.000	0.40	1.5	1050
Variant 3	1.000.000	0.42	2	1000
Variant 4	500.000	0.44	2.5	950



**Image 3.** Description of the simulator



**Image 4.** Reduced limfo-histocitary infiltration, sequestration through fibre tissue



**Image 5.** Clinical aspect of applications of our new siliconic material in lost of substances cases

The structure of the epytheses, which is dictated by the interested substrate implies the combination of two types of materials, the frequently used combination of acrylyte silicon, its adherence being essential, the current research being a conclusive starting point to this point in the field . (Image5)

The association of acrylic resins with copolymers and silicones of different resilience level, and not eluding the combination with antiseptic substances were an experiment and an also answer to the questions: which should be the structure and resilience of revetment materials for removable denture? or which are the conditioning materials for prosthetic implants therapy and for surgical obturator?

**Conclusions**

⇒ The role of siliconic materials regarding the biologic integration is already known, but the structural modifications that we induced can meet high point in biocom-

patibility, chromatic range, and it is an essential condition for the overcoming of congenital or aquired facial flaws, reaching the state of reconstructive art.

⇒ The mathematical simulation is an important step for the choice of the optimal materials regaeding the stress that is transmitted on the muco-osseuse support.

**References:**

1. Held W., Silicones (2003) Their Science, Production and Major Qualities. Centre european des silicones - report january.
2. G. Zappini, A. kammann, W. Wachter(2003) Comparison of fracture tests of denture base materials. The journal of prosthetic dentiatry., 90(6):578-15.
3. N.Forna,V. Burlui(2001)Clinical guidelines and principles in the therapy of partial extended edentation, Apollonia, 470-477.
4. D.C.Jagger, R.G. Jagger , S.M.Allen(2002) An investigation into the transverse and impact strength of high strength denture base acrylic resin. Journal of oral rehabilitation.; 29(2):263-267.

**M.-E.Antohe, A.Craciun, N.C.Forna  
ФУНДАМЕНТАЛЬНЫЙ АНАЛИЗ ИССЛЕДОВАНИЯ СИЛИКОННЫХ МАТЕРИАЛОВ  
ИСПОЛЬЗУЕМЫХ В ИМПЛАНТОЛОГИИ**

*Кафедра Ортопедической Стоматологии Медицинского Университета г.Иассы, Румыния*

**Аннотация:**

*Эта работа затрагивает вопрос исследования сферы биоматериалов из силикона, которые используются для протезирования в орально-лицевой зоне и в имплантологии. Результаты предусматривают синтез нового типа силикона с большой степенью биосовместимости, которая исследуется на животных. Важную роль также играют специальные способности и характеристика этого материала, которые должны ответить на все требования и разновидность клинических примеров.*

**Ключевые слова:**

*имплантация, биоматериал, силикон, протезирование, степень биосовместимости*

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**НОВЫЕ ТЕХНОЛОГИИ В ЛЕЧЕНИИ СЛОЖНЫХ И СОЧЕТАННЫХ  
ПОРАЖЕНИЙ СЛЕЗООТВОДЯЩИХ ПУТЕЙ**

*ФГУ МНТК "МГ" им.акад.С.Н.Федорова, Москва, Россия*

**Аннотация:**

*Операции окулопластического профиля по восстановлению слезоотведения при комбинированных патологиях вертикального и горизонтального отделов слезоотводящих путей в условиях нарушенной анатомии, рубцово измененных тканей и сопутствующей патологии, предрасполагающих к рецидивам, является одной из не простых задач офтальмохирургии. Предложенный нами комплексный метод оценки состояния слезной системы в целом, заключающийся в определении коэффициента баланса слезной системы, дает возможность правильно выбрать соответствующую хирургическую тактику лечения.Применяемая при этом модифицированная нами микроэндоскопическая, комбинированная лазерношейверная технология хирургии сочетанных поражений слезоотводящих путей позволяет улучшить функциональные, косметические результаты проведенных операций, существенно сокращает время проведения операции и послеоперационных реабилитационный период*

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