



EFFECT OF DENTURE BASE MATERIALS IMMERSION IN NATURAL AND ARTIFICIAL SALIVA

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INTRODUCTION: Age, polypharmacy and female sex - major risk factors for dry mouth

European Union will see the numbers of elderly (60+) double in the coming 30 years
(Eurostat, 2014)

POLYPHARMACY

▪ **XEROSTOMIA** was the most common oral side effect (80.5%) of the 131 most prescribed drugs in the USA *(Smith&Burtner, 1994)*

AGE

GENDER



In Romania, 23% of the population is aged over 60 years
 ♀/♂=1.38/1 *(Romanian National Institute of Statistics, 2014)*

Prevalence of dry mouth symptoms in 20-80 y.o:

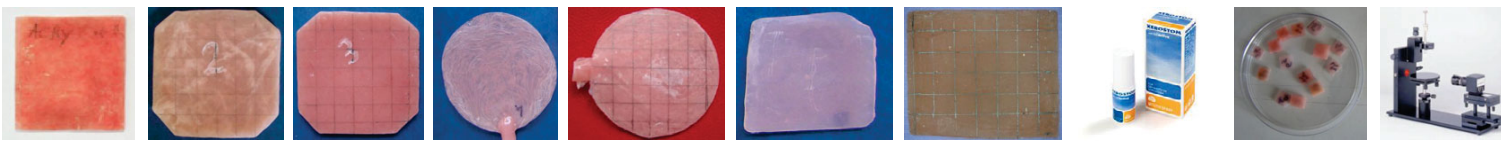
- 17% in patients without medication
- 33.5% in patients with 3 medications
- 67% in patients with 7 or more medications

(National Institutes of Health, Bethesda, USA, 2002)

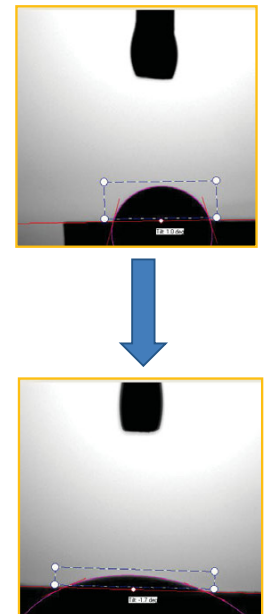


AIM: Assessment of denture base materials interaction with natural and artificial saliva

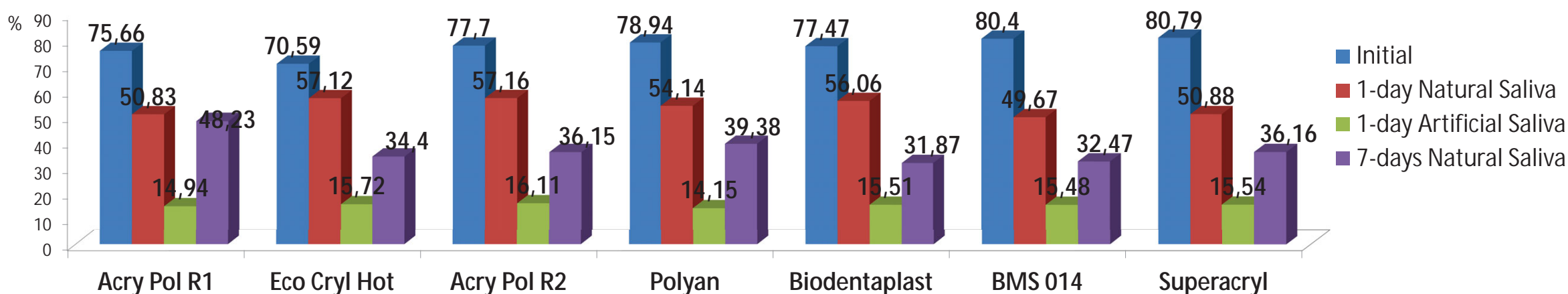
MATERIAL & METHODS



Denture base materials (4xThermo, 2xInjection)	Immersion liquid	Immersion procedure	Wettability measurement	Testing liquid
Acry Pol (Fast-R1 and Normal-R2 Polym. Cycle) Eco Cryl Hot BMS 014 Superacryl Polyan Biodentaplast	<ul style="list-style-type: none"> • Whole unstimulated natural saliva (from a denture wearer) • Artificial saliva (Xerostom® with saliactive, Biosmetics Labs., Spain) 	<ul style="list-style-type: none"> • Glass containers • 37°C Incubator • 1/7 days • Drying for 1h without cleaning agents 	<ul style="list-style-type: none"> • CAM 101 (KSV Instruments) • Sesile drop method • 3 drops/sample • 20 readings at 1s interval 	• Natural saliva



RESULTS & DISCUSSIONS



- Natural saliva - best effect on BMS 014&Superacryl
- Natural saliva - improved wettability after 7-days immersion
- Wettability increase was lower in fast thermic cycle resin

- Artificial saliva – excellent effect, especially on injection-type resins
- Artificial saliva (7-days) → superwetttable surface
- No bounce back effect detected

The present study has two novel characteristics: artificial saliva as immersion liquid and natural saliva as testing liquid.

- Murray: 73,89 to 61,20° after the first 5 minutes & increases to 63,06° after 7 days exposure – test liquid: distilled water/bounce back effect
- Ayme and Every: 2.2 x increase of the polar surface free energy (equivalent with contact angle decrease)

CONCLUSIONS

1. Exposure to natural or artificial saliva generates an improvement on wettability characteristics of investigated denture base materials.
2. In current experimental conditions, artificial saliva was more efficient than natural saliva regarding the hydrophilic behaviour.
3. The different behaviour of denture base materials gives the practitioner an option regarding the denture base material choice.
4. Salivary substitutes should be better promoted towards exposed population categories.