

# Jurnal Kesehatan Gigi

p-ISSN: [2407-0866](#)e-ISSN: [2621-3664](#)<http://ejournal.poltekkes-smg.ac.id/ojs/index.php/jkg/index>

## Increasing The Saliva Flow Rate In The Elderly Through The Semula Model (Elderly Mouth Gymnulation)

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### ABSTRACT

Carry on age experiencing the aging process Where has an impact on the function of the body's organs decrease ( organ degeneration ) is good Because factor natural nor Because of disease. The decline that occurs influences functions in the body, one of them functions in the cavity mouth that produces saliva. The declining rate of saliva flow is caused by the existing decline function of salivary glands in the elderly. Producing a Model Senam Mulut Lansia (SEMULA) in an effort to increase the function cavity mouth to rate saliva flow. Research methods used in the research This is Research and Development (R&D). The quasi-experimental design used study This is a pre-test - post-test, non-equivalent control group design. Taking a sample with a total sampling technique with criteria inclusion and exclusion consists of group interventions and group control. Oral exercises \_ were done for 21 days for the elderly. Research results This shows that there is influence before and after given treatment good in group intervention (p-value = 0.000) and control (p-value = 0.027). Test no in pairs rate salivary show the p- p-value is 0.044 (<0.05), which is significant there is a difference in effectiveness between group interventions and groups control. There is possible improvement in the pre-test and post-test seen from the difference in the average of each group, where group intervention experienced an increase of 0.14 and in the group control only 0.05. Conclusion: Development of Model Senam Mulut Lansia (SEMULA) effective in increasing function rate saliva flow.

Keyword: Oral Exercises for Elderly ; Saliva Flow Rate

### Introduction

Dental and oral health is one of the keys to improving and maintaining general health conditions. Oral health is important because it is the first entry point for the digestive and respiratory processes [ 1]. Dental and oral health experienced elderly are considered Still prone to [2] . Based on data from NCHS ( *National Center for Health Statistics* ) America (2015) almost all elderly 65 years old more than 96% experienced damaged teeth and 1 in 5 elderly own damaged teeth that are not treated [3] . Dental and oral diseases in the elderly are mostly caused by periodontal disease,

while caries is more likely to affect tooth loss at a young age [4] .

Various changes and decline function cavity mouth Because of increased age like damage increased teeth, loss of tooth consequences decline of periodontal tissue, and so on. Some studies show that the more increasing age, the more tooth will the more big . Group elderly is group lost highest , although a number of has use tooth fake , but tooth false No can replace function tooth original fully [5] . Based on the 2018 Riskesdas, the prevalence of tooth loss due to extraction or spontaneous loss was highest in those aged 65 years and over with a percentage of 30.6% and the age range of 55-64 years had a percentage of 29%.

Carry on age experiencing the aging process Where has an impact on the function of the body's organs decrease ( organ degeneration ) is good Because factor natural and also Because disease [6] . Elderly people have different characteristics from other age groups, where most elderly people experience a decline in physical, social and psychological function [7] . Mouth own various function physiological among them like mastication , swallowing , and speaking . Functions cavity mouth will experience decline along increase age . Ability muscle mouth decreasing which affects function cavity mouth . There is impaired function cause carry on age No can do function chewing , swallowing , producing saliva, and speaking with Good [5] .

The increase age cause changes in the glands saliva elderly , there are atrophy network acinar , proliferation ductus elements and some change degenerative gland saliva main . With thus There is normal and uniform decline in content acinar network gland saliva that accompanies the aging process . Although decline saliva flow is not fully accompany aging in healthy people , but in line with change morphology seen in the glands aging salivary glands saliva own capacity backup functional , enabling gland For maintain output constant fluid throughout range life man mature [8] .

Decrease function of saliva in the cavity mouth is one of decline function in cavity mouth that can cause various diseases , such as disease network soft cavity mouth , caries teeth , periodontal disease , and oral candidiasis [9] . Other diseases that often experienced elderly is xerotomy , where sensation subjective from mouth dry can cause problem speech and chewing , as well as dysphagia , so that lower quality life .

Need existence a effort For increase function cavity mouth caused by hyposaliva and xerotomy . According to research conducted Sulistiani (2021) Expression training muscle face , exercise muscle tongue and massage salivary glands can increase flow saliva secretion so that will happen increased saliva volume and reduced risk the occurrence xerotomy [10] .

Mouth exercise activities done in frame improvement function cavity mouth . Exercises for the oral cavity are given to stretch the muscles of the cheeks, tongue and mouth, so that they function to strengthen chewing , strengthen swallowing , and saliva production [11] . Mouth exercise exercises done in a way repetitive so that give maximum effect on function cavity mouth elderly . Research conducted by Naoko (2020) shows that with given to him exercise muscle mouth in the elderly can increase function cavity mouth . This exercise given for 12 months so that need long time in see its effectiveness [12] . While research conducted by Seon (2020) added exercise all over body in a series of mouth exercises use make effective saliva function and strength mouth [11] . Research related to mouth exercises has Lots done But felt Not yet maximum so need there are models that provide treatment additionally , with stage preparation , implementation of mouth gymnastics and closing .

Based on background behind the researcher interested For prove that application of mouth gymnastics model elderly can improve and maintain function cavity mouth elderly .

## Methods

Research methods used in this research This is Research and Development (R&D) which aims to For develop a model of oral gymnastics in optimize function cavity mouth in the elderly . Population in the study This totaling 52 in the orphanage social with use technique *total sampling with* with criteria inclusion and exclusion . Data collection was carried out with give training to companion elderly related implementation of mouth gymnastics elderly . Mouth Gymnastics for the Elderly is given to the elderly for 21 days by a companion elderly every morning . Data collection rate saliva flow is done before and after given mouth exercises elderly with method saliva collection with the spitting method is collect saliva in condition closed then spit it inside tube glass .

## Results and Discussion

**Table 1.**  
**Results of the normality test of the rate data saliva flow**

Group	Variable	<i>p-value</i>
Intervention	Pre Test	0.009
	Post Test	0.068
Control	Pre Test	0.004
	Post Test	0.015

**Table 2.****Results of paired and unpaired data effectiveness tests in pairs rate saliva flow**

Variables	Group	Mean ± SD Pre test	Mean ± SD Post test	Delta (Δ)	P-Value
Saliva Flow Rate	Intervention	0.311±0.231	0.455±0.261	0.14	* 0,000
	Control	0.304±0.237	0.354±0.232	0.05	**0.027

Study This show group control given treatment in the form of fruit apple and group interventions provided treatment in the form of mouth exercises elderly. The table above show that the rate data salivary flow group intervention variable pre test and group control pre and post variables post test normally distributed with *p-value* <0.05. Group intervention on variables post test distributed not normal with mark *p-value* > 0.05. So from That for distributed data not normal will non-parametric tests are carried out and for normally distributed data it will parametric tests were carried out

Paired test results rate saliva flow in groups intervention is *p-value* = 0.000 and group control is *p-value* = 0.027 p This shows that *p-value* < 0.05 so can concluded that there is influence before and after given treatment. There is possible improvement in the pre- test and post-test seen from the average difference of each group , where group intervention experience increase of 0.14 and in the group control only 0.05. Test no in pairs rate saliva flow shows mark *p-value* of 0.044 (<0.05) which means there is difference effectiveness between group intervention and group control.

Most of the salivary secretion is produced at the time tasting and chewing food. At the time No currently eat saliva still there is, but salivary flow in cavity mouth is very small . Salivary glands can stimulated with various methods, namely : 1) Mechanical , carried out with method chewing . 2) Chemical, including with taste stimuli such as sour , sweet, salty , bitter , spicy . 3) Neural, with method influence system nerve autonomous. 4) Psychic, stress hinder secretion, while tension and anger can spur stimulation salivary glands . 5) Stimulation Sick can stimulate secretion [13] .

Giving mouth exercises elderly in the form of movements made on the face that is stimulating movement in a way mechanical and training expression muscle face , muscles tongue , and the presence of massage salivary glands [10] · [14] . Tooth movement also encourages saliva secretion even though No there is food Because existence manipulation to baroreceptors located in the mouth . Acquired salivary reflex , or conditioned . In the

acquired salivary reflex , saliva secretion is produced without oral stimulation . Only with think , see , smell , or hear a delicious food can trigger saliva secretion through reflex This [15] . Salivary center in the medulla control degrees saliva secretion through nerves autonomous. Good stimulation sympathetic and also parasympathetic functioning increase salivary secretion , but the amount , characteristics , and mechanisms involved different . Stimulation parasympathetic play a role dominant in salivary secretion , causing thin saliva discharge in amount large and rich in enzymes , whereas stimulation sympathetic produces a much larger volume of saliva more A little with consistency thick and rich in mucous [13] .

Research result This in line with research conducted Sulistiani and Wahyudi who showed that facial gymnastics in a way significant increase rate saliva flow [10] · [14 ] . Likewise , research conducted Kim et al ., that there is significant improvement in rate saliva flow that is not stimulated after intervention . Increased saliva occurs moment done movement stretching tongue to up and to below , and right and left , and stimulation mucosa buccal and oral vestibule. Sublingual duct and papilla parotid stimulated with do movement said , so that saliva secretion quick increase [16] .

The process of producing saliva is also influenced by several factors. many factors experienced elderly. Most of them elderly in the nursing home studied own disease systemic, which of course There is some who consume medicine. Consumption drugs like antidepressants, antihypertensives, antihistamines and antipsychotics will cause the decline secretion in the major salivary glands . So with matter This cause carry on age the No get function of saliva as protection and will increase risk For experience complications hypofunction from salivary glands [17]. The occurrence subtraction the amount of saliva produced by the elderly can cause mechanism antibacterial through cleaning natural on the surface in mouth become No effective so that the debris will the more easy formed , increase accumulation plaque teeth , and in the end will multiply

accumulation calculus teeth that occur . In addition, saliva is reduced cause difficulty in the process of chewing and swallowing [18] .

### Conclusion

The development of the Elderly Mouth Gymnastics model “SEMULA” is feasible as a model in increase rate saliva flow . The development of the Elderly Mouth Gymnastics model “SEMULA” shows results that the ORIGINAL model is better effective increase rate saliva flow compared with chew fruit apple . This is proven statistically significant with p- value = 0.044 (0.05) and delta group intervention which is 0.14 more tall compared to group control which is 0.05.

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