

Saliva testing

A simple in-office test is now available for evaluating how well saliva is protecting teeth.

Saliva testing involves both the stimulated and unstimulated saliva. The functions and characteristics of these two forms of saliva are different. By evaluating both, the test results become very useful diagnostic and powerful communication tools.



The saliva test consists of 5 steps:

Step 1	Resting saliva	Hydration
Step 2	Resting saliva	Viscosity
Step 3	Resting saliva	pH
Step 4	Stimulated saliva	Quantity
Step 5	Stimulated saliva	Buffering capacity (quality)

N.B. - Prior to any visit where a saliva diagnostic test is planned, instruct the patient not to smoke, consume food or drink, brush their teeth or use a mouthwash for at least one hour prior to the scheduled appointment time.


Testing resting (unstimulated) saliva

Step 1. Visual examination - hydration

Resting saliva is derived mainly from the submandibular glands and it can be measured by allowing a patient to drool saliva into a collection cup (typical resting flow rate is around 0.4ml/min). However a simpler technique is to visually assess salivary production from the small salivary glands in the lips. The lower lip glands can be seen easily by turning the lip over to expose the inner (wet) side. Timing the production of droplets of saliva by these glands is a simple method to assess how hydrated the mouth is.



Evert the lower lip, gently blot the labial mucosa with a small piece of gauze, and observe the mucosa under good light. Droplets of saliva will form at the orifices of the minor glands. If the time taken for this to occur is more than 60 seconds, the resting flow is below normal.

Greater than 60 seconds	resting flow rate	Low	
Between 30-60 seconds	resting flow rate	Normal	
Less than 30 seconds	resting flow rate	High	

Step 2. Visual examination- viscosity

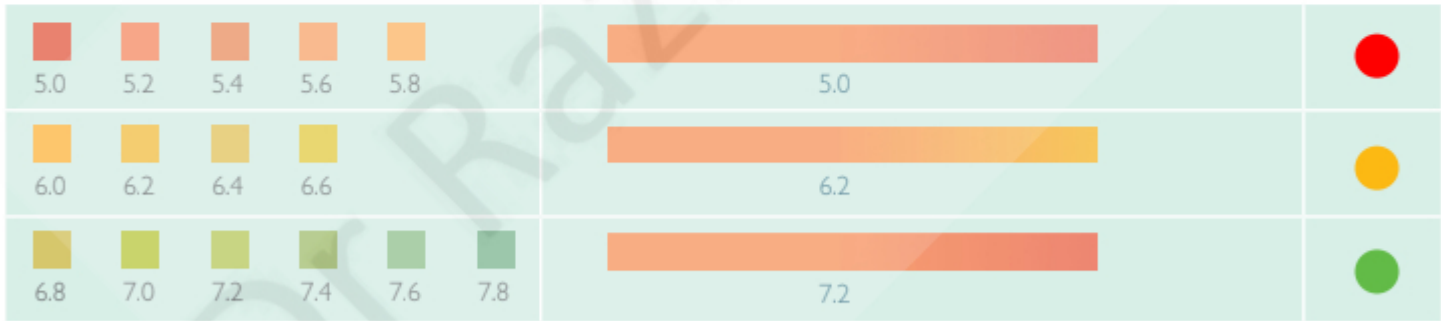
Visually assess the resting viscosity - healthy unstimulated saliva is clear in colour, and watery in consistency. If it looks stringy, frothy or bubbly, or is very sticky then it may mean the content of water is low because the rate of production is low.

N.B. - It is important that the visual examination is performed prior to a stimulated saliva sample being taken.

Sticky, frothy saliva residues	
Frothy, bubbly saliva: Increased viscosity	
Watery, clear saliva: Normal viscosity	

Step 3. Resting pH of unstimulated saliva

Test the resting pH of unstimulated saliva - a low pH indicates the environment of the mouth is much more acidic than normal. When this occurs, acid challenges result in demineralization and mineral loss at a level that the saliva cannot repair.

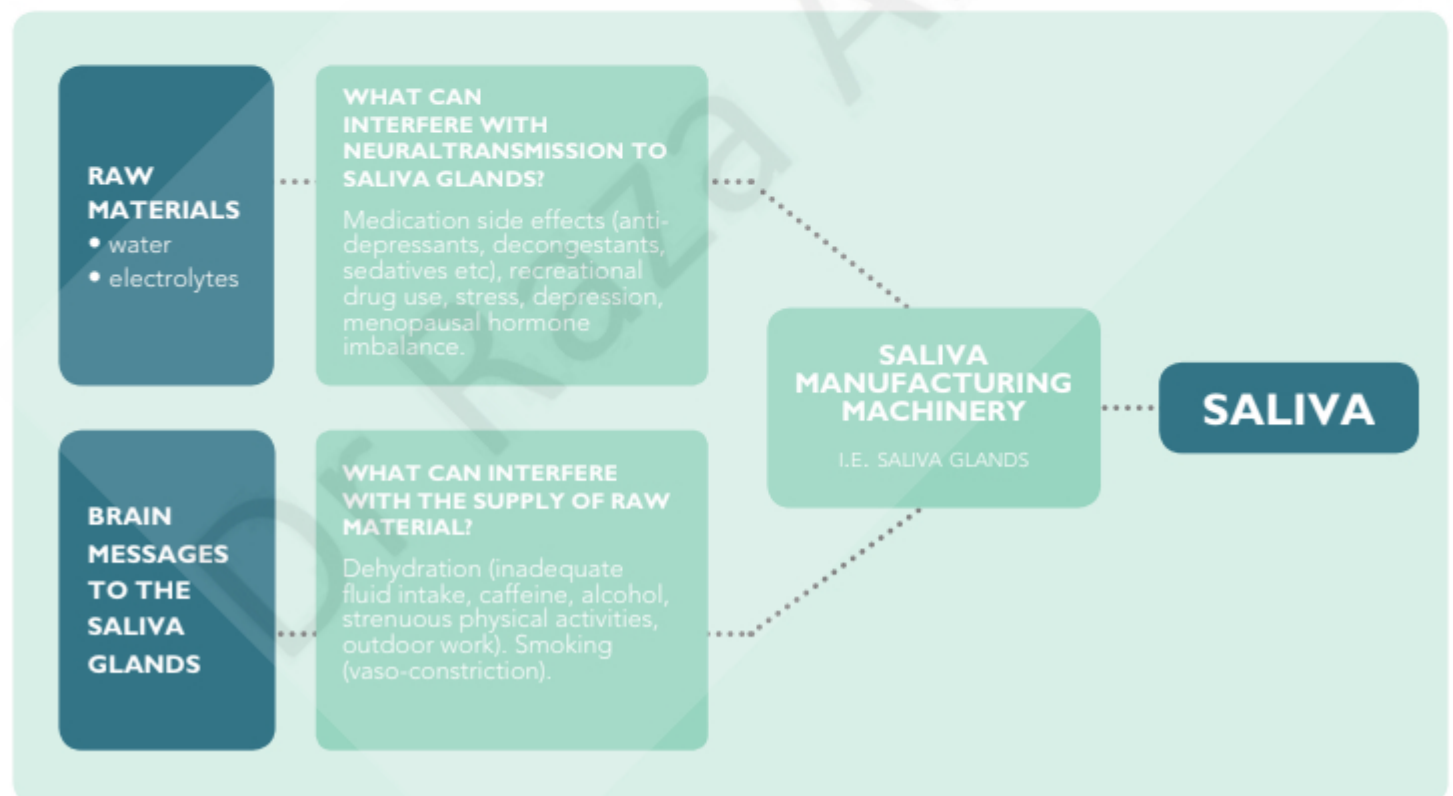


Instruct the patient to expectorate any pooled saliva into the collection cup. Take a pH test strip, place this into the sample of resting saliva for 10 seconds, and then check the colour of the strip. This should be compared with the testing chart above. Highly acidic resting saliva will be in the red section, pH 5.0-5.8. Moderately acidic saliva will be found in the yellow section, pH 6.0-6.6. Healthy saliva will be in the green section as shown above, pH 6.8-7.8.

How to interpret low test results for resting (unstimulated) saliva.

If unstimulated saliva testing reveals 'red or yellow lights' this means the saliva is not functioning to its full potential and the oral health is at risk. The saliva may not flow and protect surfaces effectively and the general acidity in the mouth will be favouring demineralization and/or increasing colonisation of aciduric bacteria.

When the stimulated saliva test results are normal, this indicates that there is either a lack of raw materials (e.g. water) or a lack of stimulus to the salivary glands (or both). Lifestyle profiling and a medical history will identify the causative factors which have reduced resting saliva activity.



Testing stimulated saliva

Step 4. Stimulated flow - quantity




Stimulated saliva comes mostly from the parotid gland, as a result of a variety of stimuli (masticatory stimulus, taste stimulus, esophageal stimulus). Stimulated flow is important to help flush away acids from the diet, from dental plaque, or from internal sources (such as gastric reflux). Testing the stimulated flow involves obtaining a saliva sample over a period of 5 minutes.

Instruct the patient to chew on the piece of wax (to stimulate salivary flow). After 30 seconds, expectorate into the spittoon. Continue chewing for a further 5 minutes, collecting the saliva into the collection cup at regular intervals.

Step 5. Stimulated flow - buffering capacity (quality)

Testing the buffering capacity indicates the effectiveness of the saliva in neutralizing acids in the mouth, which may come from the diet, from dental plaque, or from internal sources (such as gastric reflux). Bicarbonate is the most important buffering system in saliva. While unstimulated saliva has very low levels of bicarbonate, stimulated saliva has levels of bicarbonate more than 60 times higher. The GC Saliva Check Buffer Test is designed to correlate with results obtained by titration techniques as specified in Ericsson’s method (1959).

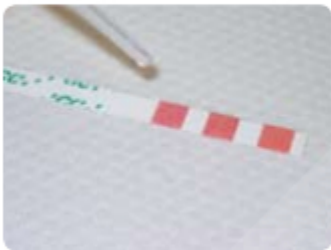
Quantity of saliva at 5 minutes

< 3.5 mL	Very Low	
3.5 - 5.0 mL	Low	
> 5.0 mL	Normal	

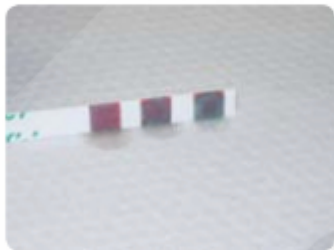
Remove a buffer test strip from the foil sealed package and place onto an absorbent tissue with the test side up.

Using a pipette, draw sufficient saliva from the collection cup, and dispense one drop onto each of the test pads. Immediately turn the strip 90 degrees to soak up any excess on the absorbent tissue. This will prevent excess saliva from swelling on the test pad and possibly affecting the accuracy of the test result.

The test pads will begin to change colour immediately and after 2 minutes the final results will be available.



Dispense one drop of saliva onto each pad.



#24, #25 already crowned
#26 awaiting preparation

Results at 2 minutes

Green	4 points
Green/Blue3 points*	Very Low
Blue	2 points
Blue/Red	1 point*
Red	0 points

* Where a colour combination provides an unclear result use intermediate scores as indicated.

Interpreting the results

Combined total	Buffering ability of saliva	
0 - 5	Very Low	
6 - 9	Low	
10 - 12	Normal	

