

Fluoride Bioavailability in Saliva after Using DENTTTABS® Compared to Dentifrice.

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Aim

- To compare the level of fluoride retained in saliva after a single use of novel fluoride DENTTTABS[®] containing NaF compared to commercial toothpaste containing amine fluoride.

Sodium fluoride



Amine fluoride



Methods



- Four subjects : 3 fast saliva secretors, 1 slow secretor participated in this crossover study

DENTABS 4350 ppm fluoride from NaF in 0.33 g tablet
(Prodentum GmbH, Berlin)



elmex 1400 ppm fluoride from amine fluoride in 1.00 g dentifrice
(GABA GmbH, Lörrach)

Methods

- After baseline saliva sample collection, the calibrated subjects brushed the teeth with the assigned product for **3 min.**
- Saliva samples were taken at
 - T1 - **immediately** after brushing
 - T2 - **10 min.**
 - T3 - **25 min.**
 - T4 - **85 min.** post-brushing

Each collection time of whole saliva for 10 min.

Methods



- Amount of collected saliva was measured



- Fluoride content was analysed using the fluoride sensitive electrode Orion 96-09

Methods

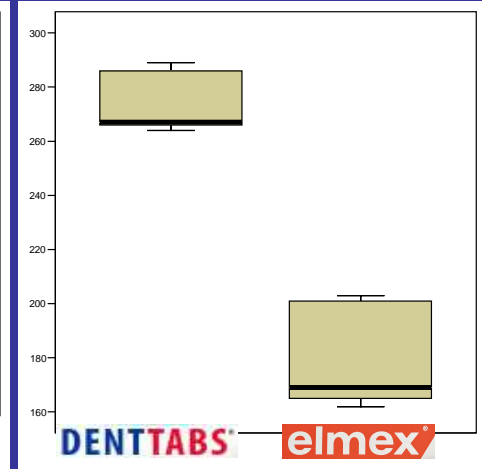
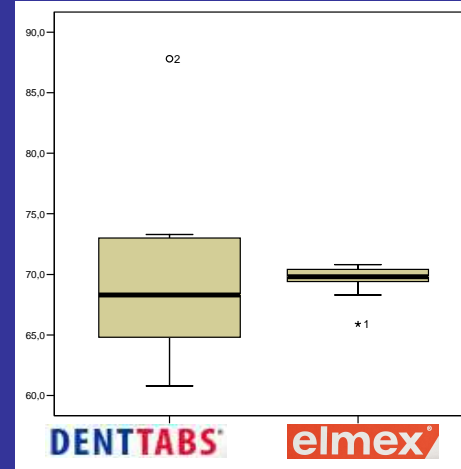
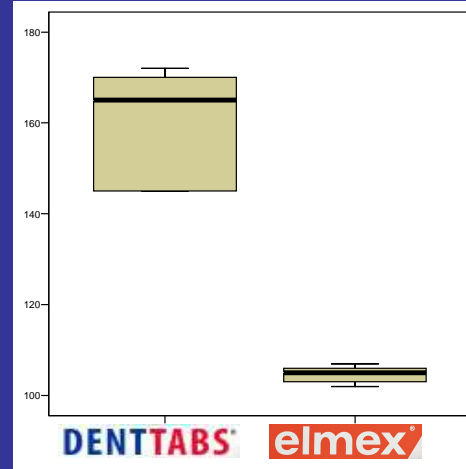
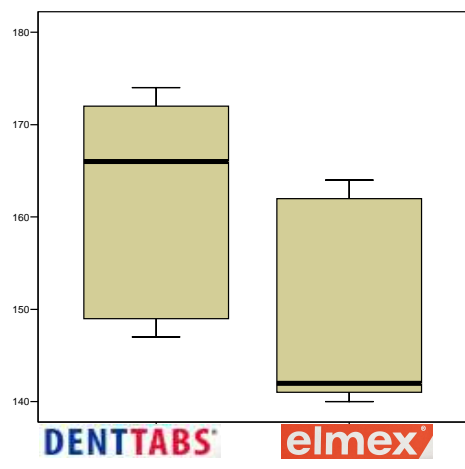
- All 4 subjects repeated all study cycles 5 times, and 3 cycles per subject underwent statistical analysis using Mann-Whitney-U test and Spearman correlation.

Results

- The fluoride retention was significantly higher after brushing with DENTTABS[®] at T1

Normal secretion

Slow secretion

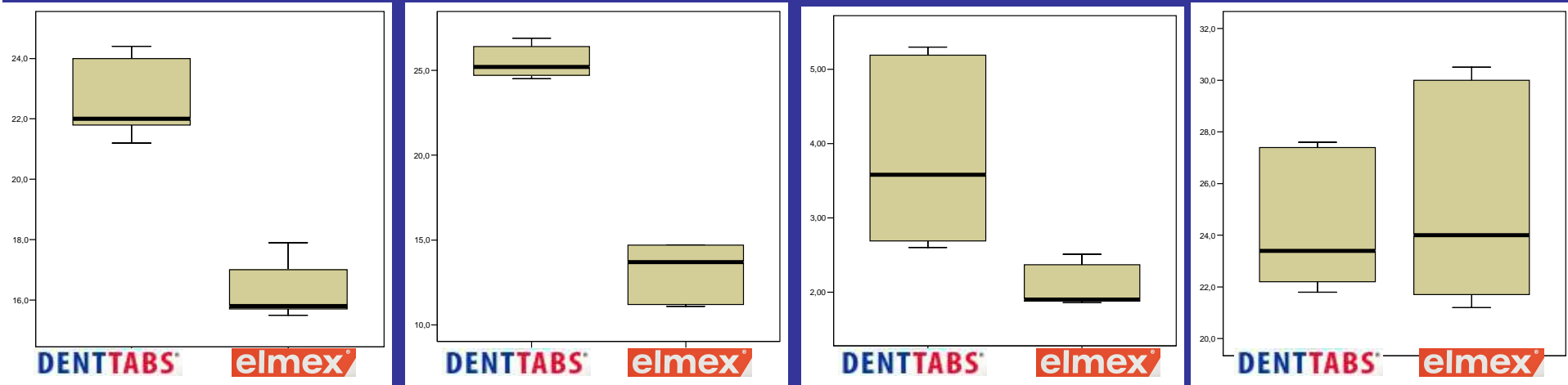


Results

- The fluoride retention was significantly higher after brushing with DENTTABS[®] at T2

Normal secretion

Slow secretion



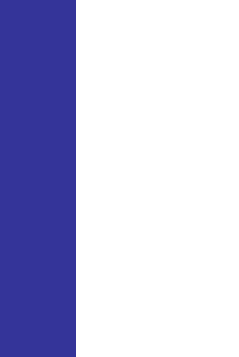
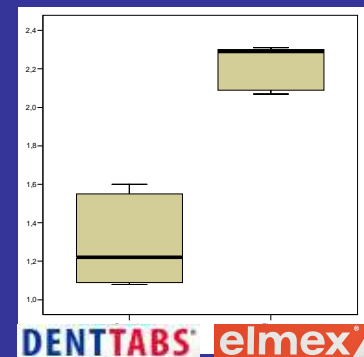
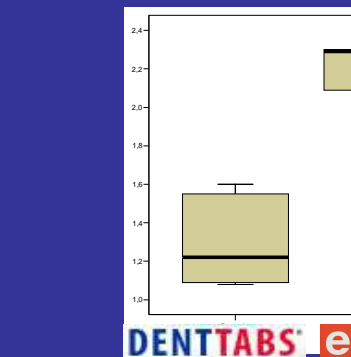
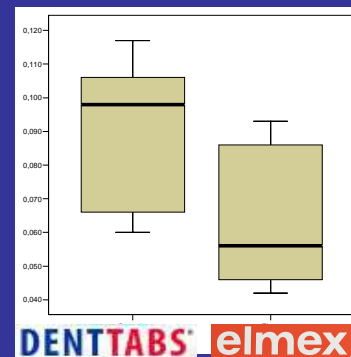
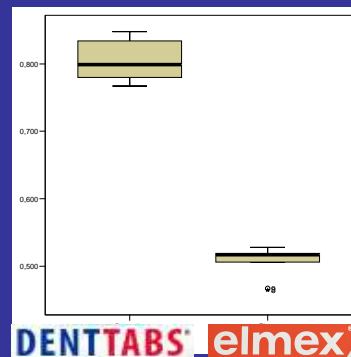
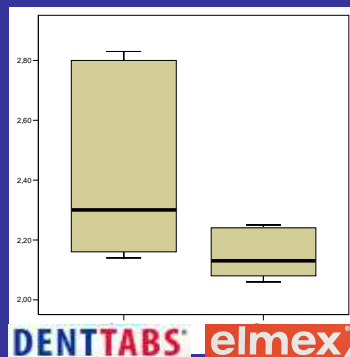
Results

- The decrease of fluoride retention after 25 min. (T3 and T4) did not significantly differ between both groups

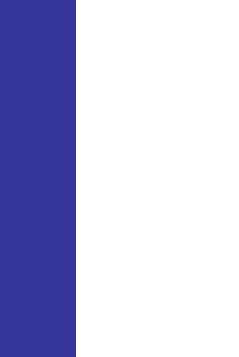
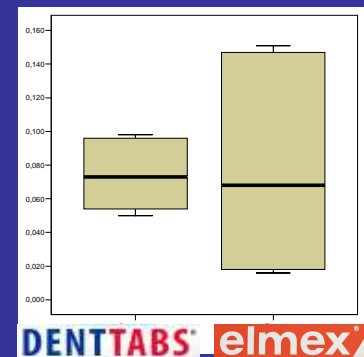
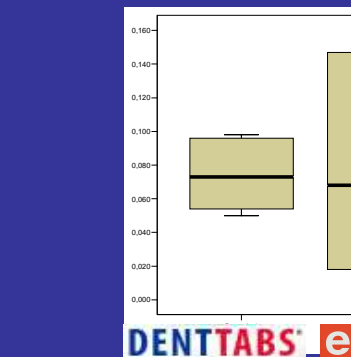
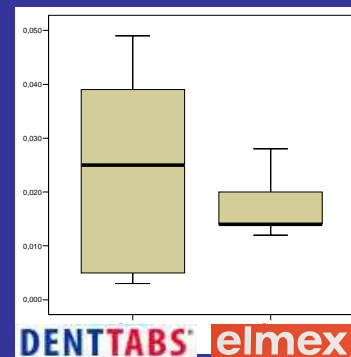
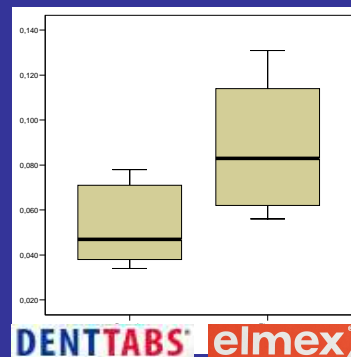
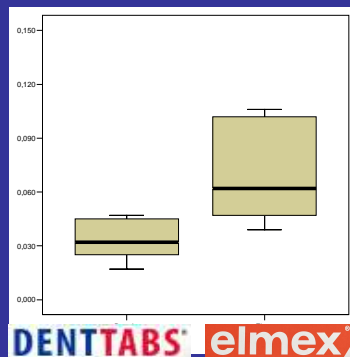
Normal secretion

Slow secretion

T3



T4



Results

- Correlation of flow rate of saliva in g/min. to fluoride retention:

Retention time	Test substance	Min flow rate g/min	ppm	Max flow rate g/min	ppm
T1 immediately	DENTTABS [®]	1.40	267.00	3.63	73.00
	elmex [®]	1.10	202.00	3.80	70.00
T2 10 min.	DENTTABS [®]	0.32	27.50	1.13	2.70
	elmex [®]	0.41	30.30	0.96	15.70
T3 25 min.	DENTTABS [®]	0.21	1.20	1.20	0.06
	elmex [®]	0.33	2.10	0.92	0.50
T4 85 min.	DENTTABS [®]	0.17	0.10	1.05	0.04
	elmex [®]	0.16	1.60	1.08	0.08

- There was a strong correlation of individual salivary flow rate to the F- content.

Results

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T4 85 min.	DENTTABS [®]	0.17	0.10	1.05	0.04
	elmex [®]	0.16	1.60	1.08	0.08

- The reduced flow rate of saliva increases F – bioavailability by a factor of ca.3 times.

Conclusions

- The saliva fluoride clearance kinetics of two equal amounts F - containing oral hygiene products demonstrate higher retention for DENTTABS[®] rapidly decreasing to baseline levels within the first 85 minutes.
- Therefore, the fluoride bioavailability is depending from the product formulation as well as from the individual pattern of salivary secretion.



THANK YOU FOR YOUR ATTENTION !