

Supplementary material

Mastication, swallowing and salivary flow in patients with head and neck cancer; objective tests versus patient reported outcomes

Supportive care in cancer

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Appendix 1. Spearman correlation coefficients of the MAT versus the EORTC QLQ-H&N35

MAT EORTC QLQ-H&N35	M0 (N=101)		M3 (N=92)		M6 (N=92)	
	<i>Spearman's ρ</i>	<i>p-value</i>	<i>Spearman's ρ</i>	<i>p-value</i>	<i>Spearman's ρ</i>	<i>p-value</i>
Pain in mouth	0.082	0.417	0.066	0.541	-0.014	0.896
Swallowing	0.103	0.312	0.123	0.253	0.245	0.018*
Senses problems	0.120	0.238	0.198	0.065	0.101	0.337
Speech problems	0.009	0.929	0.200	0.062	0.156	0.135
Trouble with social eating	0.141	0.166	0.276	0.009*	0.201	0.054
Trouble with social contact	0.029	0.778	0.295	0.005*	0.209	0.045*
Less sexuality	-0.048	0.642	0.084	0.447	0.187	0.078
Teeth	-0.004	0.972	0.097	0.368	0.106	0.313
Opening mouth	0.026	0.803	0.211	0.048*	-0.028	0.792
Dry mouth	-0.035	0.734	-0.032	0.766	-0.122	0.243
Sticky saliva	-0.053	0.605	-0.001	0.995	-0.073	0.487
Coughing	0.102	0.317	0.186	0.083	0.143	0.171
Feeling ill	0.013	0.903	0.113	0.296	0.104	0.324
Pain killers	0.135	0.186	0.068	0.530	0.069	0.510
Nutritional supplements	0.163	0.109	0.214	0.045*	0.089	0.395
Feeding tube	-0.102	0.319	0.146	0.173	-0.040	0.703
Weight loss	-0.119	0.247	-0.004	0.968	-0.009	0.936
Weight gain	0.058	0.571	0.004	0.970	0.086	0.412

*: $p \leq 0.05$; M0: before treatment, M3: 3 months after treatment, M6: 6 months after treatment

Appendix 2. Spearman correlation coefficients of the MAT versus the SWAL-QoL-NL

MAT SWAL-QoL-NL	M0 (N=101)		M3 (N=92)		M6 (N=92)	
	<i>Spearman's ρ</i>	<i>p-value</i>	<i>Spearman's ρ</i>	<i>p-value</i>	<i>Spearman's ρ</i>	<i>p-value</i>
General burden	0.264	0.010*	0.032	0.767	0.150	0.151
Food selection	0.347	0.001*	0.227	0.034*	0.232	0.026*
Eating duration	0.361	<0.001*	0.154	0.152	0.185	0.078
Eating desire	0.167	0.105	0.014	0.900	0.211	0.043*
Fear of eating	0.336	0.001*	0.172	0.108	0.163	0.119
Mental health	0.323	0.001*	0.112	0.299	0.204	0.051
Social functioning	0.247	0.016*	0.225	0.035*	0.202	0.052
Symptoms	0.385	<0.001*	0.239	0.025*	0.292	0.005*
Total score	0.310	0.002*	0.165	0.124	0.222	0.033*

*:p≤0.05; M0: before treatment, M3: 3 months after treatment, M6: 6 months after treatment

Appendix 3. Spearman correlation coefficients of the MAT versus the GRIX

MAT GRIX	M0 (N=93)		M3 (N=82)		M6 (N=89)	
	<i>Spearman's ρ</i>	<i>p-value</i>	<i>Spearman's ρ</i>	<i>p-value</i>	<i>Spearman's ρ</i>	<i>p-value</i>
Xerostomia during day	0.008	0.936	-0.022	0.843	-0.065	0.548
Xerostomia during night	0.126	0.223	0.041	0.705	0.091	0.386
Xerostomia total score	0.089	0.398	0.007	0.949	0.026	0.809
Sticky saliva during day	0.260	0.010*	-0.104	0.339	0.006	0.959
Sticky saliva during night	0.244	0.016*	-0.038	0.729	0.007	0.947
Sticking saliva total score	0.301	0.003*	-0.093	0.392	0.008	0.943

* $p \leq 0.05$; M0: before treatment, M3: 3 months after treatment, M6: 6 months after treatment

Appendix 4. Spearman correlation coefficients of the WST versus the EORTC QLQ-H&N35

WST	Number of swallows						Duration					
	M0 (N=101)		M3 (N=92)		M6 (N=92)		M0 (N=101)		M3 (N=92)		M6 (N=92)	
EORTC QLQ-H&N35	Spearman's ρ	p-value	Spearman's ρ	p-value	Spearman's ρ	p-value	Spearman's ρ	p-value	Spearman's ρ	p-value	Spearman's ρ	p-value
Pain in mouth	0.088	0.378	0.175	0.094	-0.009	0.936	0.125	0.205	0.253	0.015*	-0.075	0.479
Swallowing	0.145	0.145	0.201	0.055	0.110	0.295	0.172	0.082	0.260	0.012*	0.176	0.094
Senses problems	0.056	0.575	0.055	0.601	-0.030	0.774	0.064	0.523	0.177	0.091	0.051	0.629
Speech problems	-0.043	0.667	0.173	0.099	0.110	0.295	0.070	0.482	0.291	0.005*	0.187	0.074
Trouble with social eating	0.126	0.206	0.113	0.285	0.279	0.007*	0.178	0.072	0.277	0.008*	0.302	0.003*
Trouble with social contact	0.050	0.615	0.135	0.201	0.156	0.138	0.104	0.297	0.274	0.008*	0.196	0.062
Less sexuality	0.152	0.128	-0.003	0.981	-0.017	0.877	0.166	0.096	-0.022	0.837	0.106	0.322
Teeth	-0.072	0.472	-0.013	0.903	0.024	0.819	0.015	0.883	0.085	0.421	0.098	0.359
Opening mouth	0.114	0.253	0.067	0.525	0.073	0.489	0.004	0.964	0.163	0.121	-0.047	0.656
Dry mouth	0.052	0.603	0.053	0.616	-0.085	0.422	0.013	0.897	0.177	0.091	-0.022	0.832
Sticky saliva	-0.121	0.227	0.107	0.308	-0.037	0.724	0.015	0.879	0.238	0.022*	0.077	0.467
Coughing	-0.018	0.859	0.035	0.741	-0.056	0.595	0.090	0.364	0.092	0.385	0.018	0.866
Feeling ill	0.082	0.413	0.169	0.108	0.161	0.127	0.029	0.775	0.282	0.007*	0.112	0.291
Pain killers	0.003	0.975	0.037	0.728	-0.109	0.303	0.047	0.637	0.020	0.847	-0.087	0.408
Nutritional supplements	0.052	0.607	0.086	0.417	0.156	0.137	0.093	0.348	0.192	0.067	0.151	0.150
Feeding tube	-0.106	0.289	-0.044	0.680	0.144	0.172	-0.073	0.461	0.030	0.775	0.117	0.266
Weight loss	-0.120	0.234	0.043	0.683	0.004	0.973	-0.024	0.810	0.053	0.618	0.031	0.773
Weight gain	-0.087	0.388	-0.170	0.108	0.108	0.306	-0.103	0.303	0.065	0.539	0.030	0.777

*:p≤0.05; M0: before treatment, M3: 3 months after treatment, M6: 6 months after treatment

Appendix 5. Spearman correlation coefficients of the WST versus the SWAL-QoL-NL

WST	Number of swallows						Duration					
	M0 (N=101)		M3 (N=92)		M6 (N=92)		M0 (N=101)		M3 (N=92)		M6 (N=92)	
SWAL-QoL-NL	Spearman's ρ	p-value	Spearman's ρ	p-value	Spearman's ρ	p-value	Spearman's ρ	p-value	Spearman's ρ	p-value	Spearman's ρ	p-value
General burden	0.175	0.084	0.156	0.135	0.083	0.430	0.026	0.806	0.205	0.049*	0.162	0.123
Food selection	0.106	0.292	0.226	0.029*	0.244	0.020*	0.110	0.299	0.332	0.001*	0.265	0.011*
Eating duration	0.172	0.087	0.204	0.051	0.336	0.001*	0.222	0.034*	0.315	0.002*	0.364	<0.001*
Eating desire	0.024	0.814	0.140	0.183	0.282	0.006*	0.171	0.104	0.322	0.002*	0.338	0.001*
Fear of eating	0.222	0.026*	0.217	0.038*	0.281	0.007*	0.210	0.044*	0.316	0.002*	0.399	<0.001*
Mental health	0.123	0.226	0.196	0.061	0.242	0.021*	0.143	0.175	0.211	0.044*	0.296	0.004*
Social functioning	0.159	0.118	0.214	0.041*	0.231	0.027*	0.106	0.314	0.280	0.007*	0.254	0.014*
Symptoms	0.248	0.013*	0.172	0.101	0.142	0.179	0.138	0.193	0.268	0.010*	0.255	0.015*
Total score	0.201	0.046*	0.238	0.023*	0.335	0.001*	0.194	0.064	0.353	0.001*	0.398	<0.001*

*:p \leq 0.05; M0: before treatment, M3: 3 months after treatment, M6: 6 months after treatment

Appendix 6. Spearman correlation coefficients of the WST versus the GRIX

WST	<i>Number of swallows</i>						<i>Duration</i>					
	<i>M0</i> <i>(N=97)</i>		<i>M3</i> <i>(N=85)</i>		<i>M6</i> <i>(N=87)</i>		<i>M0</i> <i>(N=97)</i>		<i>M3</i> <i>(N=85)</i>		<i>M6</i> <i>(N=87)</i>	
GRIX	<i>Spearman's</i> ρ	<i>p-</i> <i>value</i>	<i>Spearman's</i> ρ	<i>p-</i> <i>value</i>	<i>Spearman's</i> ρ	<i>p-</i> <i>value</i>	<i>Spearman's</i> ρ	<i>p-</i> <i>value</i>	<i>Spearman's</i> ρ	<i>p-</i> <i>value</i>	<i>Spearman's</i> ρ	<i>p-</i> <i>value</i>
Xerostomia during day	0.081	0.428	-0.071	0.513	-0.056	0.605	0.103	0.307	0.060	0.584	0.022	0.843
Xerostomia during night	0.115	0.257	0.095	0.374	-0.036	0.734	0.190	0.058	0.155	0.145	0.042	0.691
Xerostomia total score	0.098	0.341	0.025	0.820	-0.077	0.476	0.137	0.180	0.124	0.257	0.027	0.805
Sticky saliva during day	0.082	0.420	0.059	0.584	-0.048	0.652	0.185	0.064	0.149	0.161	0.080	0.453
Sticky saliva during night	0.103	0.307	-0.101	0.342	-0.066	0.529	0.244	0.014*	0.046	0.665	-0.001	0.990
Sticking saliva total score	0.075	0.459	-0.009	0.931	-0.107	0.315	0.212	0.034*	0.109	0.306	0.008	0.941

*: $p \leq 0.05$; M0: before treatment, M3: 3 months after treatment, M6: 6 months after treatment

Appendix 7. Spearman correlation coefficients of salivary flow versus the EORTC QLQ-H&N35

Total salivary flow EORTC QLQ-H&N35	M0 (N=45)		M3 (N=68)		M6 (N=59)	
	<i>Spearman's ρ</i>	<i>p-value</i>	<i>Spearman's ρ</i>	<i>p-value</i>	<i>Spearman's ρ</i>	<i>p-value</i>
Pain in mouth	-0.100	0.503	-0.171	0.153	-0.048	0.718
Swallowing	-0.050	0.737	-0.167	0.164	0.073	0.579
Senses problems	-0.450	0.002*	-0.272	0.022*	-0.287	0.026*
Speech problems	0.037	0.803	0.057	0.635	0.168	0.199
Trouble with social eating	-0.051	0.735	-0.292	0.014*	-0.238	0.067
Trouble with social contact	-0.179	0.228	-0.102	0.397	-0.008	0.950
Less sexuality	-0.024	0.875	-0.008	0.950	-0.181	0.171
Teeth	0.042	0.778	-0.034	0.775	-0.091	0.493
Opening mouth	-0.188	0.207	-0.174	0.146	0.093	0.479
Dry mouth	-0.227	0.126	-0.339	0.004*	-0.279	0.031*
Sticky saliva	-0.217	0.143	-0.321	0.006*	-0.350	0.006*
Coughing	-0.300	0.040*	-0.022	0.853	-0.074	0.572
Feeling ill	-0.125	0.403	0.024	0.843	0.124	0.351
Pain killers	0.011	0.940	0.056	0.645	-0.133	0.310
Nutritional supplements	-0.390	0.007*	-0.314	0.008*	-0.162	0.215
Feeding tube	-0.196	0.187	-0.189	0.114	NA	NA
Weight loss	-0.038	0.805	-0.105	0.384	-0.267	0.041*
Weight gain	-0.185	0.219	0.059	0.627	-0.127	0.335

*: $p \leq 0.05$; M0: before treatment, M3: 3 months after treatment, M6: 6 months after treatment

Appendix 8. Spearman correlation coefficients of salivary flow versus the SWAL-QoL-NL

Total salivary flow	M0		M3		M6	
	(N=45)		(N=71)		(N=57)	
SWAL-QoL-NL	<i>Spearman's ρ</i>	<i>p-value</i>	<i>Spearman's ρ</i>	<i>p-value</i>	<i>Spearman's ρ</i>	<i>p-value</i>
General burden	-0.145	0.347	-0.146	0.220	-0.032	0.810
Food selection	-0.147	0.337	-0.219	0.065	-0.312	0.015*
Eating duration	-0.218	0.150	-0.337	0.004*	-0.122	0.354
Eating desire	-0.182	0.231	-0.393	0.001*	-0.202	0.121
Fear of eating	-0.239	0.114	-0.148	0.218	-0.146	0.266
Mental health	-0.126	0.414	-0.273	0.021*	-0.235	0.070
Social functioning	-0.148	0.342	-0.322	0.006*	-0.224	0.086
Symptoms	-0.155	0.314	-0.194	0.105	-0.157	0.231
Total score	-0.218	0.156	-0.338	0.004*	-0.245	0.059

*: $p \leq 0.05$; M0: before treatment, M3: 3 months after treatment, M6: 6 months after treatment

Appendix 9. Spearman correlation coefficients of salivary flow versus the GRIX

Total salivary flow	M0		M3		M6	
GRIX	(N=45)		(N=65)		(N=57)	
Xerostomia during day	-0.254	0.092	-0.332	0.006*	-0.441	0.001*
Xerostomia during night	-0.147	0.329	-0.225	0.063	-0.099	0.450
Xerostomia total score	-0.182	0.232	-0.327	0.008*	-0.320	0.015*
Sticky saliva during day	-0.218	0.151	-0.282	0.019*	-0.348	0.006*
Sticky saliva during night	-0.299	0.044*	-0.192	0.115	-0.128	0.331
Sticking saliva total score	-0.271	0.072	-0.274	0.023*	-0.256	0.048*

*: $p \leq 0.05$; M0: before treatment, M3: 3 months after treatment, M6: 6 months after treatment