

Table S1. Results of multi-element analysis of prepared samples of eluates of orthodontic appliances using high-resolution mass spectrometry with inductively coupled plasma. Artificial saliva eluates of metal ions released from archwires, brackets, ligatures, bands during three different elution periods (3, 7 and 14 days) were used for the analysis. The content of metal ions in artificial saliva (AS), which was used for preparation of all eluates in these experiments, is also given. The values are given in $\mu\text{g/l}$, as mean \pm SD for all metals with concentration greater than 0.6 $\mu\text{g/l}$.

Table S1a) shows the metal ions (iron, nickel, chromium, manganese and titanium) with the highest concentrations determined.

a)	Fe	Ni	Cr	Mn	Ti
Artificial Saliva	3.72 \pm 0.25	1.02 \pm 0.02	0.09 \pm 0.02	1.34 \pm 0.01	0.82 \pm 0.06
NiTi archwires 3 days	5.74 \pm 0.12	199.17 \pm 3.60	7.88 \pm 0.44	1.46 \pm 0.05	31.97 \pm 0.75
NiTi archwires 7 days	10.36 \pm 0.45	270.84 \pm 1.61	0.81 \pm 0.03	7.22 \pm 0.11	21.30 \pm 0.28
NiTi archwires 14 days	11.30 \pm 0.30	38.61 \pm 0.67	4.84 \pm 0.12	7.01 \pm 0.19	7.02 \pm 0.24
SS brackets 3 days	231.53 \pm 7.43	70.35 \pm 0.81	10.35 \pm 0.11	27.91 \pm 0.28	0.74 \pm 0.02
SS brackets 7 days	271.65 \pm 5.37	71.33 \pm 0.22	9.90 \pm 0.19	27.17 \pm 0.47	0.93 \pm 0.10
SS brackets 14 days	146.60 \pm 7.47	64.30 \pm 0.43	9.21 \pm 0.22	31.58 \pm 0.51	0.76 \pm 0.08
SS ligatures 3 days	137.66 \pm 3.12	15.76 \pm 0.28	5.15 \pm 0.12	22.45 \pm 0.33	1.05 \pm 0.07
SS ligatures 7 days	122.38 \pm 3.69	14.16 \pm 0.26	5.36 \pm 0.19	29.11 \pm 0.54	1.02 \pm 0.05
SS ligatures 14 days	127.69 \pm 1.27	15.26 \pm 0.31	4.29 \pm 0.14	31.41 \pm 0.49	25.39 \pm 0.21
SS bands 3 days	928.75 \pm 4.57	864.23 \pm 12.50	569.24 \pm 13.90	100.37 \pm 1.89	0.34 \pm 0.10
SS bands 7 days	2387.04 \pm 31.30	1295.15 \pm 16.80	722.89 \pm 8.44	157.30 \pm 4.02	0.65 \pm 0.02
SS bands 14 days	1143.04 \pm 13.60	1456.82 \pm 13.00	411.46 \pm 8.15	177.16 \pm 2.64	0.34 \pm 0.07

Table S1b) shows the sum of all determined the metal ions (Li, Be, Rb, Mo, Cd, Sn, Cs, Tl, Pb, Bi, U, Al, Ca, Ti, V, Cr, Mn, Fe, Co, Ni, Cu, Zn, Sr, Sb, Ba, As, Se).

b)	Σ total detected metals
Artificial Saliva	323.07 \pm 10.09
NiTi archwires 3 days	518.83 \pm 16.90
NiTi archwires 7 days	771.59 \pm 13.22
NiTi archwires 14 days	951.65 \pm 16.28
SS brackets 3 days	632.35 \pm 15.94
SS brackets 7 days	740.32 \pm 12.58
SS brackets 14 days	984.86 \pm 25.53
SS ligatures 3 days	502.25 \pm 9.51
SS ligatures 7 days	617.92 \pm 17.63
SS ligatures 14 days	726.37 \pm 18.29
SS bands 3 days	3069.94 \pm 37.23
SS bands 7 days	6032.05 \pm 80.44
SS bands 14 days	3753.94 \pm 48.46

In Table S1.c) all determined biogenic metal ions were listed.

c)	Ca	Co	Cu	Zn	Mo	Se
Artificial Saliva	256.89 ± 8.90	0.03 ± 0.00	1.28 ± 0.02	14.45 ± 0.32	0.72 ± 0.01	0.101
NiTi archwires 3 days	216.27 ± 10.50	0.03 ± 0.00	1.25 ± 0.01	7.33 ± 0.43	1.17 ± 0.02	<0.002
NiTi archwires 7 days	317.07 ± 8.04	0.56 ± 0.01	0.61 ± 0.01	26.33 ± 0.53	7.90 ± 0.11	<0.002
NiTi archwires 14 days	531.04 ± 8.29	0.06 ± 0.02	1.39 ± 0.03	42.89 ± 0.28	1.04 ± 0.03	0.312
SS brackets 3 days	207.83 ± 5.57	2.33 ± 0.04	11.37 ± 0.19	19.85 ± 0.76	7.39 ± 0.05	0.075
SS brackets 7 days	251.59 ± 3.63	2.44 ± 0.07	11.50 ± 0.12	14.96 ± 0.54	8.12 ± 0.14	0.178
SS brackets 14 days	573.74 ± 13.40	2.23 ± 0.08	12.19 ± 0.46	38.66 ± 1.75	6.87 ± 0.04	0.034
SS ligatures 3 days	260.00 ± 4.62	0.60 ± 0.01	2.75 ± 0.04	8.34 ± 0.10	3.17 ± 0.04	0.041
SS ligatures 7 days	295.78 ± 11.00	0.56 ± 0.01	5.19 ± 0.02	26.49 ± 0.65	3.10 ± 0.04	0.476
SS ligatures 14 days	346.63 ± 12.50	0.61 ± 0.02	4.02 ± 0.08	36.80 ± 1.35	3.03 ± 0.04	0.180
SS bands 3 days	484.42 ± 2.29	19.78 ± 0.20	29.62 ± 0.56	21.26 ± 0.24	8.46 ± 0.15	<0.002
SS bands 7 days	573.29 ± 12.30	28.96 ± 0.85	25.84 ± 0.23	40.73 ± 0.07	10.73 ± 0.09	<0.002
SS bands 14 days	359.29 ± 8.69	29.75 ± 0.51	27.30 ± 0.37	44.31 ± 0.38	11.80 ± 0.11	0.073

In Table S1.d) all determined heavy metal ions were listed.

d)	Pb	Al	Sb	Cd	Sn	As	U	Bi
Artificial Saliva	2.98 ± 0.05	4.16 ± 0.14	0.08 ± 0.03	0.61 ± 0.01	0.098	0.084	0.079	0.011
NiTi archwires 3 days	0.89 ± 0.01	8.23 ± 0.26	0.12 ± 0.06	0.67 ± 0.02	0.056	0.061	0.059	0.002
NiTi archwires 7 days	2.19 ± 0.01	23.09 ± 0.96	0.65 ± 0.12	0.75 ± 0.01	0.102	0.102	0.057	0.008
NiTi archwires 14 days	6.75 ± 0.02	215.20 ± 4.44	0.81 ± 0.33	0.70 ± 0.00	0.086	0.089	0.051	0.035
SS brackets 3 days	0.14 0.08	4.98 ± 0.34	0.15 ± 0.03	0.69 ± 0.02	<0.002	0.067	0.039	0.001
SS brackets 7 days	4.53 ± 0.08	24.33 ± 0.72	0.61 ± 0.09	0.73 ± 0.01	0.011	0.101	0.045	0.010
SS brackets 14 days	2.40 ± 0.01	15.08 ± 0.32	0.72 ± 0.16	0.70 ± 0.02	0.005	0.087	0.031	0.009
SS ligatures 3 days	0.86 ± 0.01	7.09 ± 0.36	0.13 ± 0.02	0.66 ± 0.01	0.045	0.060	0.065	0.001
SS ligatures 7 days	4.77 ± 0.02	27.69 ± 0.42	0.83 ± 0.12	0.72 ± 0.01	0.035	0.032	0.052	0.007
SS ligatures 14 days	4.92 ± 0.04	27.46 ± 0.85	0.66 ± 0.50	0.75 ± 0.02	0.022	0.098	0.039	0.023
SS bands 3 days	0.27 ± 0.00	3.43 ± 0.10	0.48 ± 0.02	0.72 ± 0.01	<0.002	0.261	0.006	0.003
SS bands 7 days	679.46 ± 4.64	24.40 ± 0.74	0.36 ± 0.08	0.77 ± 0.01	0.058	0.348	0.019	0.025
SS bands 14 days	2.58 ± 0.02	11.14 ± 0.28	0.61 ± 0.04	0.71 ± 0.01	0.023	0.397	0.012	0.004

In Table S1.e) all the other determined metal ions were listed.

e)	Rb	Sr	Ba	V	Li	Tl	Be	Cs
Artificial Saliva	27.96 ± 0.09	4.84 ± 0.05	0.95 ± 0.03	0.15 ± 0.01	0.56 ± 0.01	0.042	<0.002	0.005
NiTi archwires 3 days	29.05 ± 0.38	5.30 ± 0.19	1.18 ± 0.06	0.16 ± 0.01	0.63 ± 0.01	0.042	0.13	0.005
NiTi archwires 7 days	69.56 ± 0.77	5.82 ± 0.09	5.05 ± 0.12	0.18 ± 0.01	0.37 ± 0.01	0.586	0.10	0.013
NiTi archwires 14 days	66.79 ± 0.88	6.38 ± 0.30	7.75 ± 0.33	0.19 ± 0.00	0.70 ± 0.02	0.557	0.06	0.012
SS brackets 3 days	28.80 ± 0.15	5.27 ± 0.05	1.23 ± 0.03	0.46 ± 0.02	0.63 ± 0.01	0.044	0.13	0.011
SS brackets 7 days	31.32 ± 0.53	5.50 ± 0.18	2.09 ± 0.09	0.48 ± 0.02	0.64 ± 0.00	0.048	0.12	0.016
SS brackets 14 days	67.48 ± 0.17	6.07 ± 0.32	4.45 ± 0.16	0.43 ± 0.01	0.59 ± 0.02	0.560	0.08	0.009
SS ligatures 3 days	29.04 ± 0.25	5.11 ± 0.04	1.12 ± 0.02	0.31 ± 0.01	0.60 ± 0.00	0.042	0.14	0.005
SS ligatures 7 days	68.85 ± 0.39	5.65 ± 0.15	4.47 ± 0.12	0.32 ± 0.01	0.20 ± 0.01	0.572	0.11	0.010
SS ligatures 14 days	72.94 ± 0.26	6.60 ± 0.03	15.66 ± 0.50	0.32 ± 0.02	0.85 ± 0.03	0.606	0.10	0.017
SS bands 3 days	29.89 ± 0.50	5.79 ± 0.13	0.53 ± 0.02	1.09 ± 0.03	0.90 ± 0.03	0.042	0.06	0.013
SS bands 7 days	70.03 ± 0.46	6.56 ± 0.24	4.56 ± 0.08	1.61 ± 0.02	0.62 ± 0.02	0.569	0.05	0.016
SS bands 14 days	66.59 ± 0.49	5.50 ± 0.03	1.63 ± 0.04	1.68 ± 0.04	1.14 ± 0.02	0.527	0.04	0.017