

Table S1. Summary of the mean (SEM) oral processing behaviours of 24 carrot samples varying in hardness, unit size, thickness and lubrication for N=70 participants

Hardness	Unit size	Thickness	Samples	Bite (no.)	Bite size (g)	Chews (no.)	Chews per bite	Chews per gram	Oral exposure time (s)	Eating rate (g/min)
Hard	Large	Thick	Hard, large, thick, lub	3.1 (0.1)	4.4 (0.1)	113.6 (5.2)	39.1 (2.1)	9.1 (0.4)	73.8 (3.4)	11.7 (0.5)
			Hard, large, thick, no lub	3.5 (0.2)	3.9 (0.2)	130.4 (7.1)	41.8 (2.4)	11.2 (0.6)	84.4 (5.0)	9.7 (0.5)
		Thin	Hard, large, thin, lub	6.4 (0.3)	2.3 (0.1)	127.2 (5.8)	23.9 (1.8)	10.5 (0.5)	84.6 (3.8)	9.8 (0.4)
			Hard, large, thin, no lub	7.2 (0.4)	1.9 (0.1)	147.5 (8.5)	23.9 (1.7)	13.2 (0.7)	96.8 (5.5)	8.2 (0.4)
	Medium	Thick	Hard, medium, thick, lub	3.3 (0.1)	4.1 (0.1)	121.9 (5.5)	38.4 (1.8)	9.5 (0.4)	78.2 (3.7)	11.4 (0.5)
			Hard, medium, thick, no lub	3.3 (0.1)	3.9 (0.1)	130.5 (6.3)	42.5 (2.4)	11.0 (0.5)	84.6 (4.5)	9.9 (0.5)
		Thin	Hard, medium, thin, lub	5.7 (0.3)	2.5 (0.1)	134.3 (5.9)	26.4 (1.3)	10.9 (0.5)	88.2 (4.2)	9.5 (0.4)
			Hard, medium, thin, no lub	7.1 (0.4)	1.9 (0.1)	150.8 (8.1)	25.3 (1.8)	13.4 (0.7)	101.2 (5.4)	7.8 (0.3)
	Small	Thick	Hard, small, thick, lub	4.7 (0.1)	2.7 (0.1)	118.9 (5.3)	26.1 (1.2)	9.8 (0.4)	78.3 (3.6)	10.6 (0.4)
			Hard, small, thick, no lub	4.8 (0.1)	2.4 (0.1)	135.8 (6.6)	28.8 (1.4)	12.3 (0.6)	87.8 (4.4)	8.8 (0.4)
		Thin	Hard, small, thin, lub	8.2 (0.3)	1.6 (0.1)	135.0 (5.7)	18.0 (1.1)	11.3 (0.4)	92.4 (4.2)	8.7 (0.4)
			Hard, small, thin, no lub	10.3 (0.5)	1.2 (0.1)	155.6 (8.0)	17.6 (1.3)	14.3 (0.7)	106.3 (5.6)	7.0 (0.3)
Soft	Large	Thick	Soft, large, thick, lub	2.6 (0.1)	5.0 (0.2)	50.1(2.4)	20.8 (1.2)	4.2 (0.2)	34.0 (1.9)	25.1 (1.3)
			Soft, large, thick, no lub	2.8 (0.1)	4.4 (0.2)	56.3 (3.0)	22.5 (1.6)	5.2 (0.3)	37.0 (2.2)	21.9 (1.2)
		Thin	Soft, large, thin, lub	4.2 (0.3)	3.4 (0.2)	61.9 (3.2)	17.1 (1.1)	5.3 (0.3)	43.8 (2.6)	19.0 (1.0)
			Soft, large, thin, no lub	4.5 (0.3)	3.0 (0.2)	72.5 (4.0)	19.4 (1.4)	6.8 (0.4)	50.1 (3.0)	15.7 (0.9)
	Medium	Thick	Soft, medium, thick, lub	3.0 (0.1)	4.2 (0.2)	55.4 (2.9)	19.4 (1.2)	4.7 (0.3)	38.1(2.3)	23.0 (1.3)
			Soft, medium, thick, no lub	2.9 (0.1)	4.2 (0.2)	58.1 (2.7)	21.5 (1.2)	5.2 (0.2)	38.4 (2.1)	20.7 (1.1)
		Thin	Soft, medium, thin, lub	4.5 (0.2)	3.1 (0.2)	59.1 (2.9)	14.9 (0.9)	5.1 (0.2)	41.6 (2.3)	19.7 (1.0)
			Soft, medium, thin, no lub	5.2 (0.3)	2.8 (0.2)	67.1 (3.3)	16.5 (1.3)	6.3 (0.3)	46.5 (2.3)	16.7 (0.9)
	Small	Thick	Soft, small, thick, lub	4.1 (0.1)	3.2 (0.2)	59.6 (3.1)	15.6 (1.0)	5.0 (0.2)	40.0 (2.0)	21.0 (1.0)
			Soft, small, thick, no lub	4.4 (0.1)	2.7 (0.1)	66.9 (3.8)	16.3 (1.0)	6.1 (0.3)	44.9 (2.7)	18.0 (1.0)
		Thin	Soft, small, thin, lub	6.5 (0.4)	2.2 (0.2)	62.4 (2.7)	11.4 (0.8)	5.6 (0.2)	44.8 (2.1)	17.1 (0.8)
			Soft, small, thin, no lub	7.4 (0.5)	1.8 (0.1)	73.4 (3.3)	12.3 (0.8)	7.2 (0.3)	52.0 (2.6)	13.8 (0.7)

lub: lubrication ; no lub: no lubrication

Table S2. Summary of the mean (SEM) oral processing behaviours of 8 cracker samples varying in hardness, unit size and lubrication for N=70 participants

Hardness	Unit Size	Samples	Bite (no.)	Bite size (g)	Chews (no.)	Chews per bite	Chews per gram	Oral exposure time (s)	Eating rate (g/min)
Hard	Large	Hard, large, lub	8.9 (0.4)	0.9 (0.1)	156.0 (5.5)	18.9 (0.7)	21.6 (0.8)	120.2 (5.2)	4.0 (0.2)
		Hard, large, no lub	9.5 (0.4)	0.8 (0.1)	162.8 (6.3)	18.1 (0.7)	25.0 (1.0)	124.3 (5.6)	3.6 (0.2)
	Small	Hard, small, lub	9.3 (0.4)	1.0 (0.1)	174.9 (6.4)	20.8 (0.9)	22.1 (0.8)	134.8 (5.7)	3.9 (0.1)
		Hard, small, no lub	9.8 (0.4)	0.9 (0.1)	181.5 (6.2)	20.2 (0.9)	25.3 (0.9)	139.1 (5.4)	3.4 (0.1)
Soft	Large	Soft, large, lub	6.3 (0.2)	1.4 (0.1)	76.7 (2.4)	12.8 (0.4)	9.3 (0.3)	60.9 (2.3)	8.8 (0.3)
		Soft, large, no lub	6.5 (0.2)	1.1 (0.1)	80.9 (2.7)	13.0 (0.4)	12.9 (0.4)	63.7 (2.5)	6.5 (0.2)
	Small	Soft, small, lub	6.6 (0.3)	1.7 (0.1)	96.0 (3.1)	16.4 (0.8)	10.1 (0.3)	77.1 (3.0)	8.0 (0.3)
		Soft, small, no lub	7.2 (0.4)	1.2 (0.1)	99.1 (3.2)	15.4 (0.7)	13.2 (0.4)	79.9 (3.3)	6.2 (0.2)

lub: lubrication ; no lub: no lubrication

Table S3. Pearson's correlation between means of eating rate and other oral processing behaviour parameters of carrots varying in hardness, unit size, thickness and lubrication.

<b>Eating rate/ Oral Processing Behaviour Parameters</b>	<b>Bite (no.)</b>	<b>Bite size (g)</b>	<b>Chews (no.)</b>	<b>Chews per bite</b>	<b>Chews per gram</b>	<b>Oral exposure time (s)</b>
<b>r</b>						
<b>Model I: Hard</b>						
(A) Large						
i. Thick						
Lubrication	-0.202	0.256*	-0.809**	-0.557**	-0.813**	-0.881**
No lubrication	-0.212	0.184	-0.741**	-0.428**	-0.755**	-0.789**
ii. Thin						
Lubrication	-0.189	0.174	-0.777**	-0.366**	-0.791**	-0.871**
No lubrication	-0.171	0.113	-0.794**	-0.488**	-0.796**	-0.840**
(B) Medium						
i. Thick						
Lubrication	-0.137	0.178	-0.821**	-0.721**	-0.825**	-0.878**
No lubrication	-0.085	0.133	-0.809**	-0.681**	-0.815**	-0.843**
ii. Thin						
Lubrication	-0.271*	0.264*	-0.825**	-0.470**	-0.827**	-0.872**
No lubrication	-0.141	0.102	-0.744**	-0.522**	-0.754**	-0.826**
(C) Small						
i. Thick						
Lubrication	-0.179	0.147	-0.820**	-0.728**	-0.820**	-0.881**
No lubrication	0.071	-0.066	-0.761**	-0.747**	-0.762**	-0.823**
ii. Thin						
Lubrication	-0.204	0.062	-0.796**	-0.520**	-0.832**	-0.853**
No lubrication	-0.035	-0.059	-0.735**	-0.500**	-0.770**	-0.794**
<b>Model II: Soft</b>						
(A) Large						
i. Thick						
Lubrication	-0.268*	0.259*	-0.839**	-0.576**	-0.849**	-0.857**
No lubrication	-0.194	0.111	-0.812**	-0.532**	-0.818**	-0.834**

ii. Thin						
Lubrication	-0.357**	0.356**	-0.736**	-0.313**	-0.680**	-0.758**
No lubrication	-0.262*	0.363**	-0.785**	-0.394**	-0.798**	-0.817**
(B) Medium						
i. Thick						
Lubrication	-0.130	0.112	-0.784**	-0.632**	-0.789**	-0.780**
No lubrication	-0.219	0.247*	-0.836**	-0.557**	-0.854**	-0.830
ii. Thin						
Lubrication	-0.403**	0.399**	-0.772**	-0.258**	-0.737**	-0.794**
No lubrication	-0.375**	0.214	-0.800**	-0.318**	-0.817**	-0.876**
(C) Small						
i. Thick						
Lubrication	-0.318**	0.232	-0.752**	-0.442**	-0.770**	-0.855**
No lubrication	-0.111	0.108	-0.822**	-0.627**	-0.846**	-0.847**
ii. Thin						
Lubrication	-0.390**	0.368**	-0.827**	-0.175	-0.822**	-0.874**
No lubrication	-0.341**	0.415**	-0.824**	-0.219	-0.827**	-0.863**

(\*) and (\*\*) indicate correlation significant at  $p < 0.05$  and  $p < 0.01$  respectively.

Table S4. Pearson's correlation between means of eating rate and other oral processing behaviour parameters of crackers varying in hardness, unit size and lubrication.

<b>Eating rate/ Oral Processing Behaviour Parameters</b>	<b>Bite (no.)</b>	<b>Bite size (g)</b>	<b>Chews (no.)</b>	<b>Chews per bite</b>	<b>Chews per gram</b>	<b>Oral exposure time (s)</b>
<b>r</b>						
<b>Model I: Hard</b>						
(A) Large						
Lubrication	-0.535**	0.612**	-0.768**	-0.080	-0.745**	-0.846**
No lubrication	-0.517**	0.556**	-0.745**	-0.272*	-0.746**	-0.768**
(B) Small						
Lubrication	-0.677**	0.576**	-0.872**	0.165	-0.865**	-0.924**
No lubrication	-0.581**	0.538**	-0.855**	0.032	-0.864**	-0.924**
<b>Model II: Soft</b>						
(A) Large						
Lubrication	-0.589**	0.569**	-0.822**	-0.086	-0.827**	-0.902**
No lubrication	-0.610**	0.642**	-0.832**	-0.130	-0.859	-0.916**
(B) Small						
Lubrication	-0.513**	0.488**	-0.839**	0.054	-0.837**	-0.924**
No lubrication	-0.584**	0.616**	-0.827**	0.101	-0.834**	-0.899**

(\*) and (\*\*) indicate correlation significant at  $p < 0.05$  and  $p < 0.01$  respectively.

Table S5. Independent and combined effects of unit size, thickness, hardness and lubrication on oral processing behaviours for carrots and crackers for N=70 participants.

	Bite (no.)		Bite size (g)		Chews (no.)		Chews per bite		Chews per gram		Oral Exposure Time (s)		Eating rate (g/min)		
	<i>F</i>	<i>p</i>	<i>F</i>	<i>p</i>	<i>F</i>	<i>p</i>	<i>F</i>	<i>p</i>	<i>F</i>	<i>p</i>	<i>F</i>	<i>p</i>	<i>F</i>	<i>p</i>	
<b>I.CARROTS</b>															
(A) Independent Effect															
Unit size (df = 2.000)	15.128	<0.001	4.003	0.023	110.983	<0.001	93.967	<0.001	103.705	<0.001	104.596	<0.001	137.367	<0.001	
Thickness (df = 1.000)	51.733	<0.001	49.085	<0.001	134.018	<0.001	24.919	<0.001	145.921	<0.001	141.180	<0.001	156.705	<0.001	
Hardness (df = 1.000)	212.619	<0.001	518.368	<0.001	54.147	<0.001	288.057	<0.001	84.669	<0.001	82.712	<0.001	99.783	<0.001	
Lubrication (df = 1.000)	51.428	<0.001	50.570	<0.001	50.371	<0.001	10.023	0.002	124.974	<0.001	45.552	<0.001	113.337	<0.001	
(B) Combined Effect															
i. 2-way interaction															
Unit Size*Thickness	172.396	<0.001	197.988	<0.001	146.925	<0.001	8.189	0.001	147.075	<0.001	153.041	<0.001	125.815	<0.001	
Unit Size*Hardness	11.314	<0.001	27.839	<0.001	15.246	<0.001	73.430	<0.001	16.081	<0.001	16.885	<0.001	21.744	<0.001	
Unit Size*Lubrication	1.933	0.153	0.937	0.397	8.372	0.001	0.080	0.923	16.742	<0.001	7.044	0.002	4.205	0.019	
Thickness*Hardness	19.609	<0.001	0.513	0.433	0.427	0.515	12.124	0.001	0.897	0.017	0.484	0.489	12.911	0.001	
Thickness*Lubrication	2.382	0.127	0.083	3.087	5.171	0.026	0.007	0.934	0.003	9.735	2.102	0.152	5.810	0.019	
Hardness*Lubrication	48.296	<0.001	0.379	0.783	13.987	<0.001	8.974	0.004	<0.001	30.345	14.314	<0.001	0.367	0.547	
ii. 3-way interaction															
Unit Size*Thickness*Hardness	27.313	<0.001	5.982	0.004	0.477	0.622	7.769	0.001	1.959	0.149	2.190	0.120	17.059	<0.001	
Unit Size*Thickness*Lubrication	6.932	0.002	2.683	0.076	11.785	<0.001	1.033	0.361	24.373	<0.001	7.275	0.001	6.755	0.002	
Unit Size*Hardness*Lubrication	0.737	0.483	1.069	0.349	0.054	0.948	2.519	0.088	0.131	0.878	0.058	0.944	0.373	0.690	
Thickness*Hardness*Lubrication	0.125	0.345	0.985	0.568	0.123	0.762	1.096	0.145	0.744	0.492	0.244	0.730	0.826	0.391	
iii. 4-way interaction															
Unit Size*Thickness*Hardness* Lubrication	8.699	<0.001	2.821	0.067	0.360	0.699	2.213	0.117	0.351	0.705	1.478	0.235	0.513	0.601	
<b>II.CRACKER</b>															
(A) Independent Effect															
Unit size (df = 1.000)	259.129	<0.001	280.254	<0.001	542.981	<0.001	149.979	<0.001	528.917	<0.001	396.247	<0.001	722.014	<0.001	
Hardness (df = 1.000)	4.863	0.031	12.113	0.001	131.269	<0.001	27.329	<0.001	11.323	0.001	108.730	<0.001	29.876	<0.001	
Lubrication (df = 1.000)	11.914	0.001	148.134	<0.001	15.894	<0.001	4.411	0.039	319.471	<0.001	7.809	0.007	317.652	<0.001	
(B) Combined Effect															
i. 2-way interaction															
Unit Size*Hardness	0.368	0.546	0.214	0.645	0.000	0.997	1.812	0.183	2.168	0.145	0.193	0.662	2.670	0.107	
Unit Size*Lubrication	0.561	0.456	1.007	0.319	2.348	0.130	0.187	0.667	175.854	<0.001	0.449	0.505	189.723	<0.001	
Hardness*Lubrication	0.414	0.522	0.255	0.615	0.060	0.808	0.993	0.323	2.702	0.105	0.000	0.984	5.411	0.023	
ii. 3-way interaction															
Unit Size*Hardness*Lubrication	1.000	0.321	0.782	0.380	0.042	0.837	1.662	0.202	0.752	0.389	0.002	0.963	6.258	0.015	

F-values and p-values are derived from General Linear Model. p-values < 0.05 are significant. df refers to degree of freedom

Table S6. Independent and combined effects of unit size, thickness, hardness and lubrication on oral processing behaviours for carrots and crackers for 'faster' eaters (n=35).

	Bite (no.)		Bite size (g)		Chews (no.)		Chews per bite		Chews per gram		Oral Exposure Time (s)		Eating rate (g/min)		
	<i>F</i>	<i>p</i>	<i>F</i>	<i>p</i>	<i>F</i>	<i>p</i>	<i>F</i>	<i>p</i>	<i>F</i>	<i>p</i>	<i>F</i>	<i>p</i>	<i>F</i>	<i>p</i>	
<b>I.CARROTS</b>															
(A) Independent Effect															
Unit size (df = 2.000)	5.637	0.008	3.472	0.043	114.370	<0.001	59.568	<0.001	104.061	<0.001	111.824	<0.001	70.956	<0.001	
Thickness (df = 1.000)	30.077	<0.001	29.560	<0.001	132.922	<0.001	9.323	<b>0.004</b>	173.562	<0.001	121.479	<0.001	72.566	<0.001	
Hardness (df = 1.000)	98.876	<0.001	283.402	<0.001	33.214	<0.001	142.714	<0.001	40.306	<0.001	45.232	<0.001	52.283	<0.001	
Lubrication (df = 1.000)	33.435	<0.001	32.374	<0.001	23.102	<0.001	0.223	0.640	95.289	<0.001	20.446	<0.001	48.254	<0.001	
(B) Combined Effect															
i. 2-way interaction															
Unit Size*Thickness	129.496	<0.001	149.321	<0.001	85.121	<0.001	6.007	0.006	74.469	<0.001	120.073	<0.001	63.657	<0.001	
Unit Size*Hardness	1.226	0.307	13.971	<0.001	3.529	0.041	35.673	<0.001	3.340	<b>0.048</b>	4.436	<b>0.020</b>	8.872	0.001	
Unit Size*Lubrication	0.723	0.493	0.171	0.844	6.941	0.003	0.713	0.498	11.535	<0.001	2.924	0.068	2.273	0.119	
Thickness*Hardness	9.829	0.004	0.299	0.588	0.177	0.676	3.361	0.076	0.244	0.624	0.413	0.525	7.733	0.009	
Thickness*Lubrication	2.801	0.103	0.033	0.857	2.666	0.112	0.049	0.827	9.220	0.005	2.087	0.158	0.253	0.618	
Hardness*Lubrication	37.682	<0.001	1.344	0.254	12.385	0.001	5.652	0.023	26.687	<0.001	20.976	<0.001	2.565	0.119	
ii. 3-way interaction															
Unit Size*Thickness*Hardness	21.849	<0.001	0.127	2.199	2.245	0.122	3.542	0.040	5.645	0.008	4.976	0.013	5.564	0.008	
Unit Size*Thickness*Lubrication	6.279	0.005	0.372	1.020	4.686	0.016	1.876	0.169	11.719	<0.001	5.033	0.012	4.316	0.022	
Unit Size*Hardness*Lubrication	0.663	0.522	0.213	1.621	0.075	0.928	3.146	0.056	0.018	0.982	0.032	0.968	0.301	0.742	
Thickness*Hardness*Lubrication	1.093	0.759	0.105	0.841	0.132	0.412	1.965	0.169	2.774	0.692	1.049	0.839	0.805	0.737	
iii. 4-way interaction															
Unit Size*Thickness*Hardness* Lubrication	7.588	0.002	0.336	0.717	0.096	0.909	0.284	0.755	0.124	0.884	0.226	0.799	0.550	0.582	
<b>II.CRACKER</b>															
(A) Independent Effect															
Unit size (df = 1.000)	141.321	<0.001	154.766	<0.001	287.696	<0.001	82.828	<0.001	358.272	<0.001	195.663	<0.001	377.402	<0.001	
Hardness (df = 1.000)	1.069	0.309	8.371	0.007	102.952	<0.001	20.843	<0.001	8.909	0.005	118.949	<0.001	17.986	<0.001	
Lubrication (df = 1.000)	15.779	<0.001	84.988	<0.001	11.392	0.002	6.803	0.013	327.961	<0.001	6.506	0.015	153.162	<0.001	
(B) Combined Effect															
i. 2-way interaction															
Unit Size*Hardness	0.197	0.660	0.402	0.530	0.983	0.328	0.063	0.804	0.065	0.800	0.053	0.820	0.049	0.826	
Unit Size*Lubrication	6.063	0.019	4.311	0.045	2.373	0.133	3.533	0.069	117.760	<0.001	1.602	0.214	97.593	<0.001	
Hardness*Lubrication	0.380	0.542	0.504	0.483	0.715	0.404	2.098	0.157	4.801	0.035	0.015	0.904	8.529	0.006	
ii. 3-way interaction															
Unit Size*Hardness*Lubrication	1.243	0.273	0.003	0.958	0.000	0.990	0.273	0.604	1.544	0.222	0.740	0.396	8.355	0.007	

F-values and p-values are derived from General Linear Model. p-values < 0.05 are significant. df refers to degree of freedom.

Table S7. Independent and combined effects of unit size, thickness, hardness and lubrication on oral processing behaviours for carrots and crackers for ‘slower’ eaters (n=35).

	Bite (no.)		Bite size (g)		Chews (no.)		Chews per bite		Chews per gram		Oral Exposure Time (s)		Eating rate (g/min)		
	<i>F</i>	<i>p</i>	<i>F</i>	<i>p</i>	<i>F</i>	<i>p</i>	<i>F</i>	<i>p</i>	<i>F</i>	<i>p</i>	<i>F</i>	<i>p</i>	<i>F</i>	<i>p</i>	
<b>I.CARROTS</b>															
(A) Independent Effect															
Unit size (df = 2.000)	18.908	<0.001	1.389	0.263	75.023	<0.001	50.357	<0.001	69.916	<0.001	71.578	<0.001	63.413	<0.001	
Thickness (df = 1.000)	25.716	<0.001	20.952	<0.001	84.433	<0.001	16.100	<0.001	91.595	<0.001	91.186	<0.001	93.069	<0.001	
Hardness (df = 1.000)	115.453	<0.001	250.409	<0.001	23.297	<0.001	148.238	<0.001	43.411	<0.001	41.017	<0.001	55.822	<0.001	
Lubrication (df = 1.000)	19.000	<0.001	18.971	<0.001	42.635	<0.001	16.582	<0.001	89.370	<0.001	39.387	<0.001	65.463	<0.001	
(B) Combined Effect															
i. 2-way interaction															
Unit Size*Thickness	65.933	<0.001	68.972	<0.001	87.622	<0.001	4.680	0.016	96.175	<0.001	83.014	<0.001	71.314	<0.001	
Unit Size*Hardness	21.587	<0.001	13.962	<0.001	13.872	<0.001	36.847	<0.001	15.769	<0.001	16.556	<0.001	13.440	<0.001	
Unit Size*Lubrication	1.865	0.171	4.352	0.021	5.504	0.009	0.266	0.768	10.609	<0.001	5.762	0.007	1.882	0.168	
Thickness*Hardness	10.860	0.002	2.075	0.159	0.251	0.620	8.980	0.005	0.241	0.626	0.169	0.684	5.080	0.031	
Thickness*Lubrication	0.442	0.511	4.394	0.044	2.999	0.092	0.085	0.773	4.162	0.049	0.890	0.352	11.215	0.002	
Hardness*Lubrication	14.987	<0.001	0.004	0.953	4.879	0.034	3.470	0.071	11.060	0.002	3.984	0.054	1.126	0.296	
ii. 3-way interaction															
Unit Size*Thickness*Hardness	8.119	0.001	6.671	0.004	0.050	0.951	4.011	0.028	0.091	0.913	0.205	0.815	14.794	<0.001	
Unit Size*Thickness*Lubrication	1.592	0.219	1.644	0.209	9.616	0.001	0.505	0.608	16.992	<0.001	5.151	0.011	2.388	0.107	
Unit Size*Hardness*Lubrication	0.239	0.789	0.760	0.476	0.163	0.850	0.292	0.749	0.210	0.811	0.135	0.874	0.106	0.900	
Thickness*Hardness*Lubrication	0.117	0.748	1.094	0.531	0.113	0.736	0.182	0.706	0.194	0.648	0.127	0.915	0.148	0.736	
iii. 4-way interaction															
Unit Size*Thickness*Hardness* Lubrication	2.954	0.066	2.985	0.064	0.450	0.027	2.405	0.106	0.438	0.649	1.305	0.285	0.157	0.855	
<b>II.CRACKER</b>															
(A) Independent Effect															
Unit size (df = 1.000)	135.293	<0.001	138.602	<0.001	305.137	<0.001	66.520	<0.001	224.831	<0.001	221.253	<0.001	405.560	<0.001	
Hardness (df = 1.000)	3.865	0.058	3.827	0.059	48.715	<0.001	8.035	0.008	4.077	0.051	38.994	<0.001	11.856	0.002	
Lubrication (df = 1.000)	2.222	0.145	64.648	<0.001	7.329	0.011	0.513	0.479	128.156	<0.001	3.815	0.059	169.093	<0.001	
(B) Combined Effect															
i. 2-way interaction															
Unit Size*Hardness	0.167	0.686	0.033	0.857	0.922	0.344	4.566	0.040	5.807	0.022	0.677	0.416	11.203	0.002	
Unit Size*Lubrication	1.594	0.215	1.673	0.205	0.531	0.471	1.143	0.293	83.018	<0.001	0.008	0.931	96.245	<0.001	
Hardness*Lubrication	0.097	0.758	0.012	0.913	0.078	0.781	0.028	0.869	0.079	0.781	0.014	0.905	0.147	0.703	
ii. 3-way interaction															
Unit Size*Hardness*Lubrication	0.106	0.746	2.008	0.166	0.054	0.817	1.709	0.200	0.024	0.879	0.279	0.601	0.204	0.654	

F-values and p-values are derived from General Linear Model. p-values < 0.05 are significant. df refers to degree of freedom