S2 Results Tables

S2 Table 1. Descriptive statistics of bottle stability metrics during the instillation period in the Bottle Reference Frame. *Values are the mean (SD) and range across N = 1,699 attempts, pooled over postures and eyes.*

$\boldsymbol{Outcome\ Metric\ [Units]}$	$\boldsymbol{Mean\ (SD)}$	Median	IQR	$\boldsymbol{Range\ [Min-Max]}$
$MACC_{3D}\ [m/s^2]$	0.42 (0.20)	0.37	0.20	[0.12-1.72]
$MACC_{XY}\ [m/s^2]$	0.30 (0.15)	0.27	0.15	[0.08-1.36]
$MACC_{Z}\ [m/s^2]$	0.24 (0.12)	0.21	0.12	[0.07-1.37]
$ACC_{3D}\ [m/s^2]$	0.50 (0.24)	0.45	0.25	[0.13-1.88]
$RACC_{XY}\ [m/s^2]$	0.38 (0.19)	0.34	0.19	[0.09-1.69]
$RACC_{Z}\ [m/s^2]$	0.33 (0.16)	0.29	0.17	[0.09-1.63]
$TOTEX_{3D}\ [m/s^2]$	123.98 (93.19)	98.26	91.70	[6.91-954.66]
$TOTEX_{XY}\ [m/s^2]$	92.93 (73.48)	71.96	69.96	[4.84-798.83]
$TOTEX_{Z}\ [m/s^2]$	67 .00(49.49)	53.82	49.82	[3.98-556.14]
$MJERK_{3D}\ [m/s^3]$	29.27 (14.43)	26.27	15.08	[7.21-122.55]
$MJERK_{XY}\ [m/s^3]$	21.94 (11.82)	19.25	12.53	[4.81-109.88]
$MJERK_{Z}\ [m/s^3]$	15.85 (7.68)	14.22	8.33	[4.37-60.35]
$AREA_{CC}\ [(m/s^2)^2]$	1.79 (2.44)	1.13	1.33	[0.07-28.51]
$AREA_{CE}\ [(m/s^2)^2]$	1.35 (1.80)	0.85	0.97	[0.07-22.62]
$VOLUME_{CS}\ [(m/s^2)^3]$	5.33 (12.39)	1.96	3.62	[0.05-166.05]
$VOLUME_{CE}\ [(m/s^2)^3]$	2.69 (5.93)	1.04	1.86	[0.03-80.31]
$MFREQ\ [rad/s]$	11.22 (2.12)	11.23	2.76	[5.19-19.28]
$AREA_{SW}\ [m^2/s^5]$	2.44 (3.27)	1.48	1.85	[0.11-39.14]
$amax_{3D}\ [m/s^2]$	2.22 (1.26)	1.90	1.14	[0.7-16.12]
$amax_{XY}\ [m/s^2]$	1.62 (1.10)	1.33	0.91	[0.27-16.03]
$amax_{Z}\ [m/s^2]$	1.78 (0.89)	1.57	0.89	[0.59-12.63]
Tilt $[degrees]$	133.84 (41.2)	145.59	56.67	[1.67-179.94]
Duration $[s]$	4.53 (3.15)	3.69	3.07	[0.28-47.88]

S2 Table 2. Associations of reference-frame–dependent stability metrics and reference frame. *Overall Wald test p-values from linear GEE models testing differences across reference frames with pairwise contrasts from estimated marginal means. Estimates are on the standardized scale, and p-values are adjusted for frame dependency.*

	Overall		PCA - Bottle		Velocity - Bottle		Velocity - PCA		Vertical - Bottle	
Metric	**χ^2**	**p-value**	**Estimate**	**p-value**	**Estimate**	**p-value**	**Estimate**	**p-value**	**Estimate**	**p-value**
$MACC_{XY}$	310.09	**<0.0001**	-0.29	**<0.0001**	0.20	**<0.0001**	0.50	**<0.0001**	0.13	**<0.0001**
$MACC_{Z}$	328.49	**<0.0001**	0.34	**<0.0001**	-0.25	**<0.0001**	-0.59	**<0.0001**	-0.13	**0.0001**

$RACC_{XY}$	373.26	**<0.0001**	-0.33	**<0.0001**	0.18	**<0.0001**	0.51	**<0.0001**	0.11	**<0.0001**
$RACC_{Z}$	394.91	**<0.0001**	0.37	**<0.0001**	-0.25	**<0.0001**	-0.61	**<0.0001**	-0.13	**0.0001**
$TOTEX_{XY}$	156.19	**<0.0001**	-0.18	**<0.0001**	0.06	**0.0002**	0.25	**<0.0001**	0.02	0.3258
$TOTEX_{Z}$	168.15	**<0.0001**	0.25	**<0.0001**	-0.09	**0.0013**	-0.34	**<0.0001**	-0.03	0.6551
$MJERK_{XY}$	196.10	**<0.0001**	-0.28	**<0.0001**	0.10	**<0.0001**	0.38	**<0.0001**	0.04	0.2027
$MJERK_{Z}$	191.87	**<0.0001**	0.37	**<0.0001**	-0.15	**0.0001**	-0.52	**<0.0001**	-0.05	0.4163
$AREA_{CC}$	121.88	**<0.0001**	-0.27	**<0.0001**	0.12	**<0.0001**	0.39	**<0.0001**	0.05	0.3229
$AREA_{CE}$	111.24	**<0.0001**	-0.22	**<0.0001**	0.20	**<0.0001**	0.42	**<0.0001**	0.10	**<0.0001**
$AREA_{SW}$	100.93	**<0.0001**	-0.23	**<0.0001**	0.14	**<0.0001**	0.38	**<0.0001**	0.06	**0.0334**
$amax_{XY}$	269.56	**<0.0001**	-0.19	**<0.0001**	0.25	**<0.0001**	0.44	**<0.0001**	0.18	**<0.0001**
$amax_{Z}$	313.48	**<0.0001**	0.21	**<0.0001**	-0.32	**<0.0001**	-0.53	**<0.0001**	-0.19	**<0.0001**

S2 Table 3. Posture effects on frame-independent stability metrics. *Pairwise posture contrasts from linear GEE models fit separately for each frame-independent metric in the Bottle frame. Metrics were standardized; estimates are reported on the standardized scale, along with corresponding p-values.*

	Marginal Mean				Sitting - Supine		Standing - Supine		Standing - Sitting	
Metric	**Supine**	**Sitting**	**Standing**	**Overall p-value**	**Estimate**	**p-value**	**Estimate**	**p-value**	**Estimate**	**p-value**
MACC	-0.11	-0.04	0.13	**0.0002**	0.07	0.2792	0.24	**<0.0001**	0.17	**0.0007**
RACC	-0.07	-0.04	0.11	**0.0300**	0.02	0.8761	0.17	**0.0051**	0.15	**0.0034**
TOTEX	0.01	-0.04	0.04	1.0000	-0.04	0.6811	0.04	0.7728	0.08	0.1555
MJERK	-0.07	-0.01	0.09	0.1180	0.07	0.2920	0.16	**0.0045**	0.10	0.0942
$VOLUME_{CE}$	0.01	-0.05	0.02	1.0000	-0.06	0.7143	0.01	0.9895	0.07	0.2032
$VOLUME_{CS}$	0.01	-0.04	0.02	1.0000	-0.06	0.7440	0.00	0.9994	0.06	0.3557
MFREQ	0.09	0.06	-0.10	0.0597	-0.03	0.8575	-0.19	**0.0086**	-0.16	**0.0062**
amax	0.08	-0.06	-0.01	1.0000	-0.15	0.0961	-0.09	0.4167	0.06	0.4244
Tilt	0.59	-0.24	-0.30	**<0.0001**	-0.83	**<0.0001**	-0.89	**<0.0001**	-0.06	0.3618
Duration	0.03	-0.03	-0.02	1.0000	-0.06	0.5289	-0.05	0.7418	0.01	0.9621

S2 Table 4. Posture effects on frame-dependent stability metrics by reference frame. *Pairwise posture contrasts from linear GEE models fit separately for each metric and reference system. Metrics were standardized within the reference frame; estimates are reported on the standardized scale with corresponding p-values.*

Frame	**Bottle**									
	Marginal Mean				Sitting - Supine		Standing - Supine		Standing - Sitting	
Metric	**Supine**	**Sitting**	**Standing**	**Overall p-value**	**Estimate**	**p-value**	**Estimate**	**p-value**	**Estimate**	**p-value**
$MACC_{XY}$	-0.11	-0.03	0.14	**0.0002**	0.08	0.1886	0.25	**<0.0001**	0.16	**0.0009**
$MACC_{Z}$	-0.09	-0.04	0.12	**0.0219**	0.05	0.6246	0.20	**0.0009**	0.16	**0.0045**
$RACC_{XY}$	-0.07	-0.04	0.11	**0.0359**	0.04	0.7475	0.18	**0.0029**	0.14	**0.0056**
$RACC_{Z}$	-0.05	-0.05	0.09	0.2708	0.00	0.9993	0.14	**0.0402**	0.14	**0.0113**
$TOTEX_{XY}$	0.02	-0.03	0.03	1.0000	-0.05	0.6502	0.01	0.9691	0.06	0.3133
$TOTEX_{Z}$	-0.02	-0.04	0.06	1.0000	-0.02	0.8873	0.08	0.3102	0.11	0.0973
$MJERK_{XY}$	-0.07	0.01	0.08	0.4226	0.08	0.2242	0.14	**0.0132**	0.07	0.3451
$MJERK_{Z}$	-0.07	-0.02	0.11	0.1477	0.05	0.5135	0.18	**0.0061**	0.13	**0.0130**
$AREA_{CC}$	-0.02	-0.04	0.05	1.0000	-0.02	0.9624	0.06	0.5636	0.08	0.2109
$AREA_{CE}$	-0.02	-0.04	0.05	1.0000	-0.03	0.9186	0.07	0.5109	0.09	0.1105
$AREA_{SW}$	-0.01	-0.02	0.03	1.0000	-0.02	0.9671	0.04	0.7631	0.06	0.4537

amax$_{XY}$	0.06	-0.06	0.01	1.0000	-0.12	0.1928	-0.05	0.7566	0.07	0.3434
amax$_{Z}$	0.07	-0.07	0.01	1.0000	-0.14	0.1186	-0.07	0.6049	0.08	0.2670
Frame					**PCA**					
	Marginal Mean				**Sitting - Supine**		**Standing - Supine**		**Standing - Sitting**	
Metric	**Supine**	**Sitting**	**Standing**	**p-value**	**Estimate**	**p-value**	**Estimate**	**p-value**	**Estimate**	**p-value**
MACC$_{XY}$	-0.09	-0.04	0.13	**0.0025**	0.05	0.6066	0.21	**0.0002**	0.17	**0.0006**
MACC$_{Z}$	-0.12	-0.03	0.13	**0.0002**	0.09	0.1275	0.24	**<0.0001**	0.16	**0.0025**
RACC$_{XY}$	-0.06	-0.04	0.11	**0.0285**	0.01	0.9551	0.17	**0.0069**	0.15	**0.0020**
RACC$_{Z}$	-0.07	-0.04	0.10	0.0834	0.03	0.7678	0.17	**0.0061**	0.14	**0.0084**
TOTEX$_{XY}$	0.02	-0.04	0.04	1.0000	-0.06	0.5236	0.02	0.9593	0.08	0.1746
TOTEX$_{Z}$	-0.01	-0.03	0.05	1.0000	-0.03	0.8515	0.06	0.5492	0.08	0.1751
MJERK$_{XY}$	-0.06	-0.01	0.09	0.4655	0.05	0.5160	0.15	**0.0149**	0.09	0.1376
MJERK$_{Z}$	-0.08	0.00	0.09	0.1410	0.07	0.1849	0.17	**0.0035**	0.09	0.1108
AREA$_{CC}$	-0.01	-0.05	0.05	0.9048	-0.04	0.8041	0.05	0.6507	0.10	**0.0492**
AREA$_{CE}$	0.00	-0.06	0.06	0.4655	-0.06	0.6118	0.06	0.6320	0.12	**0.0146**
AREA$_{SW}$	-0.01	-0.05	0.05	0.9048	-0.04	0.7844	0.05	0.5943	0.10	0.0860
amax$_{XY}$	0.05	-0.07	0.04	0.9048	-0.12	0.1928	-0.01	0.9813	0.10	0.0558
amax$_{Z}$	0.09	-0.07	0.00	0.9048	-0.15	0.0688	-0.09	0.4159	0.07	0.3892
Frame					**Velocity**					
	Marginal Mean				**Sitting - Supine**		**Standing - Supine**		**Standing - Sitting**	
Metric	**Supine**	**Sitting**	**Standing**	**p-value**	**Estimate**	**p-value**	**Estimate**	**p-value**	**Estimate**	**p-value**
MACC$_{XY}$	-0.22	0.04	0.17	**<0.0001**	0.26	**<0.0001**	0.39	**<0.0001**	0.13	**0.0212**
MACC$_{Z}$	0.10	-0.16	0.05	**0.0010**	-0.26	**0.0001**	-0.05	0.6241	0.21	**0.0006**
RACC$_{XY}$	-0.17	0.03	0.14	**<0.0001**	0.20	**0.0002**	0.31	**<0.0001**	0.11	0.0596
RACC$_{Z}$	0.14	-0.17	0.03	**0.0002**	-0.30	**<0.0001**	-0.11	0.1502	0.19	**0.0015**
TOTEX$_{XY}$	-0.04	-0.01	0.06	0.7854	0.03	0.8057	0.11	0.1570	0.07	0.2647
TOTEX$_{Z}$	0.09	-0.09	0.01	0.1218	-0.18	**0.0068**	-0.09	0.3737	0.10	0.1389
MJERK$_{XY}$	-0.15	0.04	0.12	**0.0001**	0.19	**0.0001**	0.27	**<0.0001**	0.08	0.2817
MJERK$_{Z}$	0.08	-0.09	0.03	0.2892	-0.17	**0.0257**	-0.05	0.6967	0.12	0.0984
AREA$_{CC}$	-0.08	0.01	0.06	0.5487	0.09	0.2990	0.14	0.0501	0.05	0.4703
AREA$_{CE}$	-0.13	0.02	0.10	**0.0209**	0.15	**0.0269**	0.23	**0.0006**	0.09	0.1571
AREA$_{SW}$	-0.11	0.02	0.09	0.1271	0.13	0.0867	0.20	**0.0058**	0.07	0.3519
amax$_{XY}$	0.00	-0.01	0.02	1.0000	-0.01	0.9942	0.02	0.9724	0.02	0.8726
amax$_{Z}$	0.27	-0.18	-0.07	**<0.0001**	-0.45	**<0.0001**	-0.34	**<0.0001**	0.11	0.1326
Frame					**Vertical**					
	Marginal Mean				**Sitting - Supine**		**Standing - Supine**		**Standing - Sitting**	
Metric	**Supine**	**Sitting**	**Standing**	**p-value**	**Estimate**	**p-value**	**Estimate**	**p-value**	**Estimate**	**p-value**
MACC$_{XY}$	-0.22	0.03	0.18	**<0.0001**	0.25	**<0.0001**	0.40	**<0.0001**	0.15	**0.0130**
MACC$_{Z}$	0.05	-0.11	0.06	**0.0139**	-0.17	**0.0319**	0.01	0.9947	0.17	**0.0005**
RACC$_{XY}$	-0.18	0.02	0.16	**<0.0001**	0.20	**0.0004**	0.34	**<0.0001**	0.14	**0.0264**
RACC$_{Z}$	0.09	-0.12	0.03	**0.0161**	-0.21	**0.0053**	-0.07	0.5420	0.15	**0.0027**
TOTEX$_{XY}$	-0.02	-0.01	0.05	1.0000	0.01	0.9836	0.07	0.4607	0.06	0.4358
TOTEX$_{Z}$	0.04	-0.08	0.04	0.1425	-0.12	0.1301	0.00	0.9978	0.12	**0.0157**
MJERK$_{XY}$	-0.12	0.04	0.09	**0.0106**	0.16	**0.0022**	0.21	**0.0009**	0.05	0.5690
MJERK$_{Z}$	0.00	-0.08	0.09	0.0890	-0.07	0.5719	0.09	0.4360	0.16	**0.0034**
AREA$_{CC}$	-0.10	0.00	0.08	0.2478	0.10	0.3120	0.18	**0.0213**	0.08	0.3507
AREA$_{CE}$	-0.12	0.02	0.09	**0.0495**	0.13	0.1185	0.21	**0.0016**	0.08	0.3185
AREA$_{SW}$	-0.10	0.03	0.07	0.1860	0.12	0.1155	0.16	**0.0119**	0.04	0.7089

amax$_{XY}$	-0.08	0.01	0.08	0.4690	0.08	0.4591	0.16	0.0812	0.08	0.2563
amax$_{Z}$	0.26	-0.14	-0.10	**<0.0001**	-0.39	**<0.0001**	-0.35	**<0.0001**	0.04	0.5543

S2 Table 5. Frame-independent associations of successfully instilling a drop into the eye (versus not getting the drop into the eye). *Odds ratios (OR) and 95% confidence intervals (CI) from GEE logistic regression models relating standardized frame-independent stability metrics, tilt, and duration to instillation success, stratified by posture..*

Position	**Supine**				**Sitting**				**Standing**			
Metric	**OR**	**95% CI**	**p-value**	**Adjusted p-value**	**OR**	**95% CI**	**p-value**	**Adjusted p-value**	**OR**	**95% CI**	**p-value**	**Adjusted p-value**
MACC	0.57	[0.45, 0.72]	**<0.0001**	**0.0001**	0.78	[0.55, 1.11]	0.1712	1.0000	0.79	[0.58, 1.08]	0.1336	1.0000
RACC	0.62	[0.51, 0.76]	**<0.0001**	**0.0001**	0.78	[0.54, 1.11]	0.1686	1.0000	0.78	[0.57, 1.08]	0.1345	1.0000
TOTEX	1.05	[0.59, 1.89]	0.8688	1.0000	0.82	[0.62, 1.10]	0.1806	1.0000	0.83	[0.61, 1.13]	0.2427	1.0000
MJERK	0.59	[0.44, 0.79]	**0.0004**	**0.0098**	0.87	[0.58, 1.29]	0.4750	1.0000	0.88	[0.63, 1.23]	0.4497	1.0000
VOLUME$_{CE}$	0.83	[0.75, 0.92]	**0.0005**	**0.0131**	0.71	[0.56, 0.90]	**0.0051**	0.1222	0.77	[0.64, 0.94]	**0.0114**	0.2612
VOLUME$_{CS}$	0.83	[0.77, 0.90]	**<0.0001**	**0.0001**	0.75	[0.56, 1.01]	0.0544	0.9789	0.78	[0.63, 0.98]	**0.0302**	0.6033
MFREQ	1.39	[0.87, 2.23]	0.1701	1.0000	1.27	[0.93, 1.73]	0.1373	1.0000	1.19	[0.84, 1.68]	0.3355	1.0000
amax	0.89	[0.71, 1.11]	0.2948	1.0000	0.81	[0.64, 1.02]	0.0792	1.0000	0.78	[0.61, 1.00]	**0.0478**	0.9091
Tilt	1.36	[1.04, 1.79]	**0.0249**	0.5226	2.08	[1.40, 3.08]	**0.0003**	**0.0074**	1.52	[1.07, 2.14]	**0.0185**	0.4065
Duration	1.45	[0.61, 3.45]	0.4070	1.0000	0.92	[0.67, 1.28]	0.6342	1.0000	0.88	[0.71, 1.09]	0.2385	1.0000

S2 Table 6. Frame-independent associations of dispensing a single drop (versus multiple drops). *ORs and 95% CIs from GEE logistic regression models relating standardized frame-independent metrics, tilt, and duration to dispensing one drop, stratified by posture..*

Position	**Supine**				**Sitting**				**Standing**			
Metric	**OR**	**95% CI**	**p-value**	**Adjusted p-value**	**OR**	**95% CI**	**p-value**	**Adjusted p-value**	**OR**	**95% CI**	**p-value**	**Adjusted p-value**
MACC	0.93	[0.76, 1.16]	0.5544	1.0000	1.05	[0.81, 1.37]	0.6881	1.0000	1.02	[0.76, 1.37]	0.8778	1.0000
RACC	0.96	[0.79, 1.16]	0.6578	1.0000	1.00	[0.77, 1.30]	0.9887	1.0000	0.96	[0.71, 1.30]	0.8087	1.0000
TOTEX	0.62	[0.44, 0.86]	**0.0051**	0.1286	0.61	[0.45, 0.83]	**0.0019**	**0.0489**	0.46	[0.32, 0.67]	**<0.0001**	**0.0009**
MJERK	0.97	[0.78, 1.22]	0.8186	1.0000	1.14	[0.89, 1.45]	0.2960	1.0000	1.01	[0.76, 1.33]	0.9557	1.0000
VOLUME$_{CE}$	1.01	[0.88, 1.15]	0.9039	1.0000	1.11	[0.88, 1.41]	0.3505	1.0000	0.92	[0.71, 1.19]	0.5199	1.0000
VOLUME$_{CS}$	1.03	[0.93, 1.15]	0.5104	1.0000	1.06	[0.85, 1.33]	0.6040	1.0000	0.92	[0.73, 1.15]	0.4628	1.0000
MFREQ	1.06	[0.87, 1.30]	0.5473	1.0000	1.11	[0.90, 1.35]	0.3381	1.0000	0.93	[0.79, 1.11]	0.4615	1.0000
amax	0.96	[0.81, 1.15]	0.6751	1.0000	0.86	[0.70, 1.05]	0.1546	1.0000	0.84	[0.65, 1.09]	0.1887	1.0000
Tilt	1.18	[0.90, 1.54]	0.2370	1.0000	0.97	[0.78, 1.20]	0.7681	1.0000	1.06	[0.83, 1.37]	0.6138	1.0000
Duration	0.49	[0.38, 0.63]	**<0.0001**	**<0.0001**	0.50	[0.37, 0.66]	**<0.0001**	**0.0001**	0.36	[0.26, 0.50]	**<0.0001**	**<0.0001**

S2 Table 7. Frame-independent associations of bottle tip contamination. *ORs and 95% CIs from GEE logistic regression models relating standardized frame-independent metrics, tilt, and duration to bottle tip contamination, stratified by posture. Reference category: contamination = yes (touch occurred).*

Position	**Supine**				**Sitting**				**Standing**			
Metric	**OR**	**95% CI**	**p-value**	**Adjusted p-value**	**OR**	**95% CI**	**p-value**	**Adjusted p-value**	**OR**	**95% CI**	**p-value**	**Adjusted p-value**

MACC	0.81	[0.65, 1.02]	0.0704	1.0000	0.63	[0.47, 0.84]	**0.0014**	**0.0387**	0.79	[0.62, 1.01]	0.0625	1.0000
RACC	0.84	[0.71, 0.99]	**0.0430**	0.8172	0.66	[0.51, 0.85]	**0.0016**	**0.0421**	0.79	[0.63, 1.00]	**0.0465**	0.8374
TOTEX	0.94	[0.79, 1.10]	0.4252	1.0000	0.83	[0.68, 1.03]	0.0904	1.0000	0.89	[0.74, 1.06]	0.1865	1.0000
MJERK	0.92	[0.76, 1.12]	0.4285	1.0000	0.66	[0.48, 0.90]	**0.0084**	0.2008	0.77	[0.62, 0.97]	**0.0291**	0.5816
VOLUME$_{CE}$	0.95	[0.87, 1.04]	0.2697	1.0000	0.57	[0.39, 0.83]	**0.0034**	0.0856	0.89	[0.73, 1.09]	0.2653	1.0000
VOLUME$_{CS}$	0.95	[0.88, 1.02]	0.1745	1.0000	0.55	[0.39, 0.78]	**0.0008**	**0.0225**	0.87	[0.74, 1.03]	0.0979	1.0000
MFREQ	1.27	[1.06, 1.52]	**0.0100**	0.2291	1.02	[0.85, 1.20]	0.8525	1.0000	1.00	[0.85, 1.18]	0.9968	1.0000
amax	0.88	[0.78, 1.01]	0.0634	1.0000	0.83	[0.72, 0.96]	**0.0137**	0.3018	0.82	[0.69, 0.97]	**0.0202**	0.4233
Tilt	0.92	[0.70, 1.20]	0.5338	1.0000	1.89	[1.43, 2.50]	**<0.0001**	**0.0002**	1.79	[1.43, 2.27]	**<0.0001**	**<0.0001**
Duration	0.91	[0.75, 1.10]	0.3418	1.0000	0.88	[0.71, 1.09]	0.2294	1.0000	0.89	[0.75, 1.08]	0.2206	1.0000

S2 Table 8. Frame-dependent associations of instillation success across reference frames. *ORs and 95% CIs from GEE logistic regression models relating standardized frame-dependent stability metrics to instillation success, fit separately by posture and reference frame. Reference category: drop not in the eye.*

Position	**Supine**															
Frame	**Bottle**				**PCA**				**Velocity**				**Vertical**			
Metric	**OR**	**95% CI**	**p-value**	**adjusted p-value**	**OR**	**95% CI**	**p-value**	**adjusted p-value**	**OR**	**95% CI**	**p-value**	**adjusted p-value**	**OR**	**95% CI**	**p-value**	**adjusted p-value**
MACC$_{XY}$	0.59	[0.47, 0.73]	**<0.0001**	**0.0002**	0.66	[0.53, 0.82]	**0.0002**	**0.0238**	0.58	[0.47, 0.72]	**<0.0001**	**0.0001**	0.56	[0.45, 0.69]	**<0.0001**	**<0.0001**
MACC$_{Z}$	0.62	[0.47, 0.81]	**0.0005**	0.0667	0.53	[0.43, 0.67]	**<0.0001**	**<0.0001**	0.61	[0.47, 0.78]	**0.0001**	**0.0153**	0.68	[0.52, 0.90]	**0.0076**	0.9058
RACC$_{XY}$	0.62	[0.50, 0.77]	**<0.0001**	**0.0024**	0.70	[0.57, 0.87]	**0.0010**	0.1332	0.62	[0.50, 0.76]	**<0.0001**	**0.0013**	0.60	[0.48, 0.74]	**<0.0001**	**0.0005**
RACC$_{Z}$	0.68	[0.56, 0.83]	**0.0001**	**0.0148**	0.60	[0.49, 0.72]	**<0.0001**	**<0.0001**	0.67	[0.56, 0.82]	**0.0001**	**0.0091**	0.74	[0.60, 0.90]	**0.0034**	0.4282
TOTEX$_{XY}$	1.05	[0.57, 1.95]	0.8703	1.0000	1.18	[0.61, 2.26]	0.6251	1.0000	1.00	[0.57, 1.75]	0.9945	1.0000	1.00	[0.57, 1.77]	0.9902	1.0000
TOTEX$_{Z}$	1.05	[0.61, 1.82]	0.8559	1.0000	0.96	[0.57, 1.62]	0.8749	1.0000	1.15	[0.64, 2.07]	0.6498	1.0000	1.19	[0.64, 2.21]	0.5902	1.0000
MJERK$_{XY}$	0.62	[0.47, 0.82]	**0.0006**	0.0828	0.69	[0.52, 0.93]	**0.0154**	1.0000	0.60	[0.46, 0.78]	**0.0001**	**0.0169**	0.59	[0.45, 0.78]	**0.0003**	**0.0333**
MJERK$_{Z}$	0.61	[0.44, 0.83]	**0.0019**	0.2424	0.54	[0.40, 0.73]	**<0.0001**	**0.0065**	0.63	[0.45, 0.87]	**0.0055**	0.6544	0.70	[0.52, 0.95]	**0.0197**	1.0000
AREA$_{CC}$	0.74	[0.63, 0.86]	**0.0001**	**0.0201**	0.85	[0.74, 0.98]	**0.0289**	1.0000	0.73	[0.63, 0.85]	**<0.0001**	**0.0057**	0.71	[0.61, 0.84]	**<0.0001**	**0.0051**
AREA$_{CE}$	0.75	[0.66, 0.87]	**0.0001**	**0.0099**	0.83	[0.72, 0.94]	**0.0050**	0.6008	0.76	[0.66, 0.87]	**0.0001**	**0.0131**	0.72	[0.63, 0.82]	**<0.0001**	**0.0002**
AREA$_{SW}$	0.74	[0.65, 0.84]	**<0.0001**	**0.0007**	0.80	[0.69, 0.92]	**0.0020**	0.2600	0.74	[0.65, 0.83]	**<0.0001**	**0.0002**	0.71	[0.61, 0.81]	**<0.0001**	**0.0002**
amax$_{XY}$	0.89	[0.73, 1.09]	0.2708	1.0000	0.97	[0.76, 1.23]	0.7809	1.0000	0.87	[0.70, 1.08]	0.2176	1.0000	0.87	[0.70, 1.08]	0.2109	1.0000
amax$_{Z}$	0.86	[0.69, 1.07]	0.1631	1.0000	0.86	[0.69, 1.06]	0.1626	1.0000	0.89	[0.70, 1.12]	0.3217	1.0000	0.90	[0.70, 1.16]	0.4206	1.0000
Position	**Sitting**															
Frame	**Bottle**				**PCA**				**Velocity**				**Vertical**			
Metric	**OR**	**95% CI**	**p-value**	**adjusted p-value**	**OR**	**95% CI**	**p-value**	**adjusted p-value**	**OR**	**95% CI**	**p-value**	**adjusted p-value**	**OR**	**95% CI**	**p-value**	**adjusted p-value**
MACC$_{XY}$	0.73	[0.53, 1.01]	0.0601	1.0000	0.77	[0.56, 1.05]	0.0957	1.0000	0.82	[0.54, 1.24]	0.3479	1.0000	0.90	[0.62, 1.29]	0.5502	1.0000
MACC$_{Z}$	0.90	[0.65, 1.26]	0.5432	1.0000	0.81	[0.56, 1.16]	0.2516	1.0000	0.80	[0.66, 0.96]	**0.0171**	1.0000	0.69	[0.50, 0.94]	**0.0192**	1.0000
RACC$_{XY}$	0.75	[0.54, 1.05]	0.0987	1.0000	0.78	[0.57, 1.07]	0.1272	1.0000	0.81	[0.54, 1.24]	0.3361	1.0000	0.87	[0.60, 1.27]	0.4751	1.0000
RACC$_{Z}$	0.87	[0.61, 1.23]	0.4321	1.0000	0.80	[0.55, 1.16]	0.2407	1.0000	0.81	[0.67, 0.98]	**0.0308**	1.0000	0.70	[0.52, 0.95]	**0.0242**	1.0000
TOTEX$_{XY}$	0.81	[0.61, 1.09]	0.1688	1.0000	0.84	[0.64, 1.11]	0.2229	1.0000	0.88	[0.64, 1.21]	0.4298	1.0000	0.84	[0.63, 1.11]	0.2166	1.0000
TOTEX$_{Z}$	0.86	[0.66, 1.11]	0.2400	1.0000	0.81	[0.60, 1.09]	0.1667	1.0000	0.77	[0.60, 0.99]	**0.0382**	1.0000	0.81	[0.61, 1.08]	0.1447	1.0000
MJERK$_{XY}$	0.86	[0.59, 1.24]	0.4127	1.0000	0.88	[0.62, 1.25]	0.4743	1.0000	0.93	[0.57, 1.51]	0.7575	1.0000	0.90	[0.63, 1.29]	0.5824	1.0000
MJERK$_{Z}$	0.92	[0.62, 1.37]	0.6831	1.0000	0.87	[0.57, 1.33]	0.5255	1.0000	0.85	[0.66, 1.10]	0.2128	1.0000	0.83	[0.56, 1.25]	0.3750	1.0000
AREA$_{CC}$	0.71	[0.57, 0.90]	**0.0038**	0.4658	0.76	[0.60, 0.96]	**0.0209**	1.0000	0.76	[0.53, 1.11]	0.1602	1.0000	0.88	[0.60, 1.30]	0.5211	1.0000
AREA$_{CE}$	0.73	[0.59, 0.90]	**0.0027**	0.3448	0.72	[0.59, 0.87]	**0.0006**	0.0739	0.67	[0.51, 0.88]	**0.0044**	0.5375	0.87	[0.62, 1.23]	0.4404	1.0000
AREA$_{SW}$	0.78	[0.61, 1.00]	**0.0483**	1.0000	0.75	[0.62, 0.91]	**0.0042**	0.5161	0.73	[0.52, 1.02]	0.0656	1.0000	0.91	[0.67, 1.24]	0.5483	1.0000
amax$_{XY}$	0.81	[0.65, 1.02]	0.0758	1.0000	0.84	[0.64, 1.10]	0.2020	1.0000	0.81	[0.63, 1.03]	0.0890	1.0000	0.80	[0.63, 1.01]	0.0608	1.0000
amax$_{Z}$	0.85	[0.66, 1.10]	0.2284	1.0000	0.84	[0.66, 1.07]	0.1610	1.0000	0.84	[0.69, 1.03]	0.0860	1.0000	0.83	[0.66, 1.04]	0.1076	1.0000

Position	Standing															
Frame	Bottle				PCA				Velocity				Vertical			
Metric	OR	95% CI	p-value	adjusted p-value	OR	95% CI	p-value	adjusted p-value	OR	95% CI	p-value	adjusted p-value	OR	95% CI	p-value	adjusted p-value
$MACC_{XY}$	0.81	[0.60, 1.10]	0.1824	1.0000	0.77	[0.59, 1.01]	0.0602	1.0000	0.82	[0.60, 1.13]	0.2214	1.0000	0.87	[0.62, 1.22]	0.4128	1.0000
$MACC_{Z}$	0.79	[0.58, 1.07]	0.1264	1.0000	0.81	[0.58, 1.12]	0.2027	1.0000	0.80	[0.62, 1.04]	0.0963	1.0000	0.73	[0.57, 0.94]	**0.0161**	1.0000
$RACC_{XY}$	0.80	[0.60, 1.08]	0.1529	1.0000	0.77	[0.58, 1.02]	0.0649	1.0000	0.81	[0.59, 1.11]	0.1886	1.0000	0.87	[0.61, 1.24]	0.4321	1.0000
$RACC_{Z}$	0.78	[0.56, 1.08]	0.1392	1.0000	0.80	[0.57, 1.12]	0.1968	1.0000	0.80	[0.61, 1.06]	0.1189	1.0000	0.73	[0.56, 0.94]	**0.0150**	1.0000
$TOTEX_{XY}$	0.81	[0.61, 1.09]	0.1635	1.0000	0.80	[0.61, 1.06]	0.1286	1.0000	0.84	[0.62, 1.13]	0.2466	1.0000	0.86	[0.63, 1.18]	0.3607	1.0000
$TOTEX_{Z}$	0.87	[0.63, 1.20]	0.4034	1.0000	0.87	[0.63, 1.21]	0.4160	1.0000	0.83	[0.61, 1.14]	0.2548	1.0000	0.79	[0.59, 1.07]	0.1271	1.0000
$MJERK_{XY}$	0.84	[0.62, 1.14]	0.2723	1.0000	0.82	[0.63, 1.07]	0.1439	1.0000	0.90	[0.66, 1.23]	0.5161	1.0000	0.97	[0.68, 1.37]	0.8464	1.0000
$MJERK_{Z}$	0.99	[0.69, 1.43]	0.9663	1.0000	0.97	[0.66, 1.43]	0.8750	1.0000	0.91	[0.64, 1.30]	0.6114	1.0000	0.80	[0.58, 1.10]	0.1653	1.0000
$AREA_{CC}$	0.80	[0.63, 1.01]	0.0610	1.0000	0.81	[0.64, 1.01]	0.0661	1.0000	0.81	[0.62, 1.06]	0.1263	1.0000	0.86	[0.62, 1.18]	0.3526	1.0000
$AREA_{CE}$	0.81	[0.64, 1.03]	0.0886	1.0000	0.77	[0.60, 0.98]	**0.0350**	1.0000	0.80	[0.61, 1.05]	0.1076	1.0000	0.83	[0.61, 1.11]	0.2033	1.0000
$AREA_{SW}$	0.80	[0.63, 1.02]	0.0704	1.0000	0.77	[0.61, 0.98]	**0.0315**	1.0000	0.82	[0.66, 1.03]	0.0852	1.0000	0.89	[0.68, 1.16]	0.3731	1.0000
$amax_{XY}$	0.80	[0.65, 0.99]	**0.0381**	1.0000	0.82	[0.61, 1.11]	0.1922	1.0000	0.75	[0.59, 0.97]	**0.0283**	1.0000	0.81	[0.60, 1.09]	0.1635	1.0000
$amax_{Z}$	0.86	[0.63, 1.17]	0.3334	1.0000	0.83	[0.65, 1.05]	0.1162	1.0000	0.91	[0.68, 1.22]	0.5338	1.0000	0.79	[0.63, 0.98]	**0.0330**	1.0000

S2 Table 9. Frame-dependent associations of the number of drops across reference systems. *ORs and 95% CIs from GEE logistic regression models relating standardized frame-dependent stability metrics to dispensing one drop, fit separately by posture and reference frame. Reference category: multiple drops (≥2).*

Position	Supine															
Frame	Bottle				PCA				Velocity				Vertical			
Metric	OR	95% CI	p-value	Adjusted p-value	OR	95% CI	p-value	Adjusted p-value	OR	95% CI	p-value	Adjusted p-value	OR	95% CI	p-value	Adjusted p-value
$MACC_{XY}$	0.95	[0.77, 1.18]	0.6220	1.0000	0.90	[0.71, 1.14]	0.3903	1.0000	0.96	[0.77, 1.20]	0.7388	1.0000	0.97	[0.78, 1.22]	0.8180	1.0000
$MACC_{Z}$	0.93	[0.75, 1.14]	0.4521	1.0000	0.96	[0.79, 1.16]	0.6807	1.0000	0.90	[0.72, 1.11]	0.3342	1.0000	0.89	[0.74, 1.09]	0.2700	1.0000
$RACC_{XY}$	0.95	[0.78, 1.15]	0.6065	1.0000	0.91	[0.74, 1.14]	0.4070	1.0000	0.96	[0.79, 1.18]	0.6976	1.0000	0.96	[0.78, 1.19]	0.7463	1.0000
$RACC_{Z}$	0.96	[0.81, 1.15]	0.6831	1.0000	0.99	[0.83, 1.18]	0.9349	1.0000	0.94	[0.79, 1.12]	0.5253	1.0000	0.94	[0.80, 1.11]	0.5008	1.0000
$TOTEX_{XY}$	0.65	[0.46, 0.91]	**0.0116**	1.0000	0.63	[0.44, 0.90]	**0.0112**	1.0000	0.64	[0.46, 0.88]	**0.0074**	1.0000	0.63	[0.45, 0.87]	**0.0054**	0.7515
$TOTEX_{Z}$	0.58	[0.42, 0.79]	**0.0007**	0.1003	0.63	[0.46, 0.84]	**0.0020**	0.2868	0.62	[0.45, 0.84]	**0.0020**	0.2833	0.62	[0.44, 0.87]	**0.0059**	0.8141
$MJERK_{XY}$	0.99	[0.79, 1.23]	0.9214	1.0000	0.92	[0.72, 1.16]	0.4604	1.0000	1.00	[0.79, 1.25]	0.9771	1.0000	0.99	[0.79, 1.23]	0.9325	1.0000
$MJERK_{Z}$	0.95	[0.77, 1.18]	0.6406	1.0000	1.06	[0.87, 1.30]	0.5501	1.0000	0.95	[0.78, 1.16]	0.6300	1.0000	0.96	[0.78, 1.16]	0.6681	1.0000
$AREA_{CC}$	0.98	[0.85, 1.14]	0.7996	1.0000	0.97	[0.83, 1.14]	0.6779	1.0000	1.00	[0.85, 1.16]	0.9802	1.0000	1.00	[0.85, 1.18]	0.9841	1.0000
$AREA_{CE}$	0.98	[0.85, 1.14]	0.8056	1.0000	0.96	[0.82, 1.14]	0.6648	1.0000	1.01	[0.85, 1.22]	0.8890	1.0000	1.01	[0.85, 1.20]	0.9185	1.0000
$AREA_{SW}$	0.97	[0.83, 1.15]	0.7459	1.0000	0.96	[0.81, 1.16]	0.6951	1.0000	1.04	[0.86, 1.25]	0.7100	1.0000	1.03	[0.85, 1.25]	0.7537	1.0000
$amax_{XY}$	0.90	[0.76, 1.09]	0.2700	1.0000	0.88	[0.74, 1.04]	0.1283	1.0000	0.96	[0.81, 1.14]	0.6216	1.0000	0.90	[0.76, 1.08]	0.2538	1.0000
$amax_{Z}$	1.00	[0.86, 1.16]	0.9952	1.0000	1.01	[0.84, 1.22]	0.9275	1.0000	0.93	[0.81, 1.08]	0.3345	1.0000	1.00	[0.86, 1.18]	0.9512	1.0000
Position	Sitting															
Frame	Bottle				PCA				Velocity				Vertical			
Metric	OR	95% CI	p-value	Adjusted p-value	OR	95% CI	p-value	Adjusted p-value	OR	95% CI	p-value	Adjusted p-value	OR	95% CI	p-value	Adjusted p-value
$MACC_{XY}$	1.10	[0.84, 1.43]	0.5009	1.0000	1.02	[0.79, 1.33]	0.8568	1.0000	1.06	[0.83, 1.35]	0.6315	1.0000	1.04	[0.81, 1.35]	0.7288	1.0000
$MACC_{Z}$	0.97	[0.76, 1.23]	0.7983	1.0000	1.09	[0.84, 1.39]	0.5394	1.0000	1.04	[0.81, 1.33]	0.7597	1.0000	1.05	[0.82, 1.33]	0.7074	1.0000
$RACC_{XY}$	1.03	[0.80, 1.33]	0.8234	1.0000	1.01	[0.78, 1.30]	0.9646	1.0000	1.00	[0.78, 1.28]	0.9904	1.0000	1.00	[0.78, 1.30]	0.9700	1.0000
$RACC_{Z}$	0.93	[0.72, 1.20]	0.6001	1.0000	1.00	[0.77, 1.28]	0.9726	1.0000	1.02	[0.80, 1.30]	0.8754	1.0000	0.99	[0.78, 1.25]	0.9198	1.0000
$TOTEX_{XY}$	0.65	[0.47, 0.88]	**0.0061**	0.8295	0.62	[0.47, 0.81]	**0.0004**	0.0624	0.61	[0.45, 0.85]	**0.0030**	0.4143	0.59	[0.44, 0.78]	**0.0002**	**0.0295**

TOTEX$_Z$	0.57	[0.42, 0.77]	**0.0003**	**0.0434**	0.62	[0.44, 0.87]	**0.0057**	0.7883	0.66	[0.52, 0.84]	**0.0009**	0.1309	0.65	[0.45, 0.93]	**0.0205**	1.0000
MJERK$_{XY}$	1.19	[0.94, 1.49]	0.1350	1.0000	1.12	[0.89, 1.41]	0.3112	1.0000	1.12	[0.88, 1.41]	0.3397	1.0000	1.08	[0.85, 1.37]	0.5352	1.0000
MJERK$_Z$	0.99	[0.78, 1.25]	0.9421	1.0000	1.14	[0.88, 1.45]	0.3225	1.0000	1.11	[0.88, 1.41]	0.3812	1.0000	1.19	[0.94, 1.52]	0.1451	1.0000
AREA$_{CC}$	1.03	[0.83, 1.27]	0.7938	1.0000	1.02	[0.81, 1.28]	0.8368	1.0000	1.02	[0.80, 1.32]	0.8431	1.0000	1.03	[0.82, 1.32]	0.7752	1.0000
AREA$_{CE}$	1.05	[0.84, 1.32]	0.6588	1.0000	1.09	[0.88, 1.33]	0.4633	1.0000	1.02	[0.81, 1.28]	0.8957	1.0000	1.06	[0.84, 1.35]	0.6010	1.0000
AREA$_{SW}$	1.16	[0.94, 1.43]	0.1499	1.0000	1.16	[0.95, 1.41]	0.1362	1.0000	1.11	[0.90, 1.37]	0.3316	1.0000	1.10	[0.90, 1.35]	0.3481	1.0000
amax$_{XY}$	0.86	[0.70, 1.08]	0.1821	1.0000	0.83	[0.69, 1.02]	0.0733	1.0000	0.82	[0.68, 1.00]	**0.0470**	1.0000	0.87	[0.70, 1.09]	0.2104	1.0000
amax$_Z$	0.83	[0.68, 1.01]	0.0568	1.0000	0.88	[0.72, 1.09]	0.2353	1.0000	0.98	[0.78, 1.22]	0.8583	1.0000	0.85	[0.71, 1.02]	0.0852	1.0000
Position	**Standing**															
Frame	**Bottle**				**PCA**				**Velocity**				**Vertical**			
Metric	**OR**	**95% CI**	**p-value**	**Adjusted p-value**	**OR**	**95% CI**	**p-value**	**Adjusted p-value**	**OR**	**95% CI**	**p-value**	**Adjusted p-value**	**OR**	**95% CI**	**p-value**	**Adjusted p-value**
MACC$_{XY}$	1.04	[0.78, 1.37]	0.8032	1.0000	0.95	[0.71, 1.27]	0.7180	1.0000	1.04	[0.79, 1.39]	0.7534	1.0000	0.98	[0.74, 1.30]	0.8730	1.0000
MACC$_Z$	1.00	[0.77, 1.30]	0.9818	1.0000	1.09	[0.82, 1.45]	0.5626	1.0000	0.99	[0.79, 1.25]	0.9476	1.0000	1.08	[0.82, 1.43]	0.5789	1.0000
RACC$_{XY}$	0.97	[0.73, 1.30]	0.8581	1.0000	0.87	[0.66, 1.14]	0.2968	1.0000	0.99	[0.74, 1.33]	0.9467	1.0000	0.91	[0.68, 1.22]	0.5268	1.0000
RACC$_Z$	0.93	[0.71, 1.23]	0.6498	1.0000	1.03	[0.76, 1.39]	0.8702	1.0000	0.93	[0.74, 1.19]	0.5894	1.0000	1.02	[0.78, 1.33]	0.9105	1.0000
TOTEX$_{XY}$	0.50	[0.35, 0.70]	**0.0001**	**0.0128**	0.48	[0.33, 0.68]	**0.0001**	**0.0084**	0.49	[0.34, 0.70]	**0.0001**	**0.0150**	0.45	[0.32, 0.65]	**<0.0001**	**0.0021**
TOTEX$_Z$	0.44	[0.30, 0.65]	**<0.0001**	**0.0076**	0.47	[0.33, 0.67]	**<0.0001**	**0.0039**	0.46	[0.32, 0.65]	**<0.0001**	**0.0015**	0.50	[0.34, 0.71]	**0.0001**	**0.0180**
MJERK$_{XY}$	1.04	[0.79, 1.37]	0.7680	1.0000	0.97	[0.74, 1.28]	0.8187	1.0000	1.05	[0.80, 1.39]	0.7101	1.0000	0.96	[0.74, 1.25]	0.7780	1.0000
MJERK$_Z$	0.96	[0.74, 1.27]	0.7981	1.0000	1.04	[0.80, 1.37]	0.7390	1.0000	0.96	[0.74, 1.23]	0.7466	1.0000	1.05	[0.80, 1.41]	0.6950	1.0000
AREA$_{CC}$	0.94	[0.72, 1.23]	0.6855	1.0000	0.83	[0.65, 1.06]	0.1387	1.0000	0.94	[0.71, 1.25]	0.6873	1.0000	0.85	[0.66, 1.11]	0.2432	1.0000
AREA$_{CE}$	0.99	[0.75, 1.30]	0.9345	1.0000	0.89	[0.67, 1.19]	0.4238	1.0000	0.98	[0.75, 1.30]	0.9124	1.0000	0.90	[0.69, 1.19]	0.4589	1.0000
AREA$_{SW}$	1.02	[0.76, 1.37]	0.8941	1.0000	0.93	[0.68, 1.25]	0.6001	1.0000	1.00	[0.75, 1.33]	0.9943	1.0000	0.92	[0.69, 1.22]	0.5370	1.0000
amax$_{XY}$	0.79	[0.62, 1.01]	0.0624	1.0000	0.70	[0.57, 0.86]	**0.0007**	0.0951	0.88	[0.69, 1.14]	0.3417	1.0000	0.78	[0.62, 0.96]	**0.0227**	1.0000
amax$_Z$	0.85	[0.67, 1.10]	0.2230	1.0000	0.87	[0.67, 1.14]	0.3148	1.0000	0.79	[0.64, 0.99]	**0.0365**	1.0000	0.92	[0.72, 1.16]	0.4575	1.0000

S2 Table 10. Frame-dependent associations of bottle tip contamination across reference frames. *ORs and 95% CIs from GEE logistic regression models relating standardized frame-dependent stability metrics to bottle tip contamination, fit separately by posture and reference system. Reference category: contamination = yes (touch occurred).*

Position	**Supine**															
Frame	**Bottle**				**PCA**				**Velocity**				**Vertical**			
Metric	**OR**	**95% CI**	**p-value**	**Adjusted p-value**	**OR**	**95% CI**	**p-value**	**Adjusted p-value**	**OR**	**95% CI**	**p-value**	**Adjusted p-value**	**OR**	**95% CI**	**p-value**	**Adjusted p-value**
MACC$_{XY}$	0.84	[0.67, 1.05]	0.1200	1.0000	0.83	[0.69, 1.01]	0.0620	1.0000	0.88	[0.71, 1.10]	0.2752	1.0000	0.81	[0.64, 1.03]	0.0840	1.0000
MACC$_Z$	0.81	[0.66, 0.98]	**0.0344**	1.0000	0.84	[0.67, 1.05]	0.1256	1.0000	0.77	[0.63, 0.93]	**0.0096**	1.0000	0.86	[0.70, 1.05]	0.1491	1.0000
RACC$_{XY}$	0.87	[0.73, 1.04]	0.1221	1.0000	0.86	[0.73, 1.01]	0.0727	1.0000	0.88	[0.75, 1.04]	0.1516	1.0000	0.83	[0.68, 1.00]	0.0561	1.0000
RACC$_Z$	0.83	[0.70, 0.98]	**0.0256**	1.0000	0.84	[0.70, 1.00]	0.0508	1.0000	0.81	[0.68, 0.97]	**0.0204**	1.0000	0.88	[0.75, 1.02]	0.0844	1.0000
TOTEX$_{XY}$	0.95	[0.81, 1.11]	0.5151	1.0000	0.93	[0.80, 1.09]	0.3600	1.0000	0.96	[0.82, 1.12]	0.6301	1.0000	0.93	[0.80, 1.09]	0.3581	1.0000
TOTEX$_Z$	0.91	[0.76, 1.09]	0.2916	1.0000	0.94	[0.79, 1.14]	0.5541	1.0000	0.89	[0.75, 1.06]	0.2169	1.0000	0.94	[0.78, 1.14]	0.5122	1.0000
MJERK$_{XY}$	0.93	[0.76, 1.15]	0.4983	1.0000	0.93	[0.79, 1.11]	0.4638	1.0000	0.99	[0.80, 1.22]	0.9146	1.0000	0.89	[0.73, 1.10]	0.2800	1.0000
MJERK$_Z$	0.91	[0.77, 1.09]	0.2963	1.0000	0.94	[0.76, 1.16]	0.5798	1.0000	0.83	[0.67, 1.02]	0.0844	1.0000	1.00	[0.81, 1.22]	0.9781	1.0000
AREA$_{CC}$	0.93	[0.83, 1.05]	0.2632	1.0000	0.93	[0.83, 1.03]	0.1573	1.0000	0.94	[0.85, 1.04]	0.2346	1.0000	0.89	[0.78, 1.03]	0.1252	1.0000
AREA$_{CE}$	0.94	[0.84, 1.06]	0.3336	1.0000	0.93	[0.84, 1.04]	0.2403	1.0000	0.96	[0.86, 1.06]	0.4307	1.0000	0.92	[0.80, 1.05]	0.2001	1.0000
AREA$_{SW}$	1.00	[0.89, 1.11]	0.9658	1.0000	0.93	[0.83, 1.04]	0.2212	1.0000	1.00	[0.89, 1.12]	0.9970	1.0000	0.93	[0.82, 1.05]	0.2662	1.0000
amax$_{XY}$	0.93	[0.83, 1.05]	0.2679	1.0000	0.92	[0.81, 1.04]	0.1939	1.0000	0.94	[0.85, 1.04]	0.2477	1.0000	0.93	[0.85, 1.03]	0.1517	1.0000
amax$_Z$	0.87	[0.76, 1.00]	**0.0464**	1.0000	0.89	[0.79, 1.01]	0.0641	1.0000	0.86	[0.75, 1.00]	**0.0492**	1.0000	0.90	[0.79, 1.02]	0.0972	1.0000
Position	**Sitting**															

Frame	Bottle				PCA				Velocity				Vertical			
Metric	OR	95% CI	p-value	Adjusted p-value	OR	95% CI	p-value	Adjusted p-value	OR	95% CI	p-value	Adjusted p-value	OR	95% CI	p-value	Adjusted p-value
$MACC_{XY}$	0.64	[0.47, 0.85]	**0.0028**	0.3971	0.67	[0.51, 0.88]	**0.0044**	0.5902	0.66	[0.50, 0.86]	**0.0026**	0.3779	0.65	[0.49, 0.85]	**0.0015**	0.2320
$MACC_{Z}$	0.69	[0.54, 0.89]	**0.0041**	0.5622	0.65	[0.50, 0.85]	**0.0019**	0.2915	0.79	[0.64, 0.97]	**0.0239**	1.0000	0.73	[0.56, 0.94]	**0.0150**	1.0000
$RACC_{XY}$	0.66	[0.50, 0.87]	**0.0033**	0.4594	0.68	[0.53, 0.89]	**0.0053**	0.6996	0.68	[0.53, 0.88]	**0.0036**	0.4864	0.66	[0.51, 0.85]	**0.0013**	0.2043
$RACC_{Z}$	0.71	[0.57, 0.89]	**0.0032**	0.4493	0.68	[0.53, 0.87]	**0.0021**	0.3120	0.79	[0.64, 0.96]	**0.0203**	1.0000	0.77	[0.61, 0.96]	**0.0238**	1.0000
$TOTEX_{XY}$	0.83	[0.67, 1.03]	0.0847	1.0000	0.83	[0.67, 1.03]	0.0856	1.0000	0.85	[0.69, 1.04]	0.1139	1.0000	0.84	[0.67, 1.04]	0.1125	1.0000
$TOTEX_{Z}$	0.85	[0.69, 1.03]	0.1015	1.0000	0.85	[0.70, 1.04]	0.1140	1.0000	0.84	[0.68, 1.03]	0.0968	1.0000	0.84	[0.69, 1.02]	0.0823	1.0000
$MJERK_{XY}$	0.66	[0.49, 0.90]	**0.0087**	1.0000	0.66	[0.49, 0.90]	**0.0091**	1.0000	0.68	[0.51, 0.92]	**0.0122**	1.0000	0.67	[0.50, 0.90]	**0.0080**	1.0000
$MJERK_{Z}$	0.70	[0.53, 0.92]	**0.0109**	1.0000	0.71	[0.54, 0.93]	**0.0130**	1.0000	0.72	[0.55, 0.95]	**0.0212**	1.0000	0.72	[0.53, 0.97]	**0.0290**	1.0000
$AREA_{CC}$	0.60	[0.43, 0.82]	**0.0015**	0.2240	0.66	[0.51, 0.86]	**0.0022**	0.3167	0.64	[0.48, 0.85]	**0.0022**	0.3221	0.62	[0.48, 0.81]	**0.0003**	0.0522
$AREA_{CE}$	0.63	[0.46, 0.85]	**0.0032**	0.4442	0.67	[0.50, 0.89]	**0.0064**	0.8397	0.63	[0.48, 0.83]	**0.0013**	0.1973	0.63	[0.46, 0.84]	**0.0019**	0.2803
$AREA_{SW}$	0.62	[0.44, 0.88]	**0.0066**	0.8597	0.63	[0.46, 0.86]	**0.0041**	0.5622	0.62	[0.45, 0.85]	**0.0030**	0.4281	0.63	[0.46, 0.85]	**0.0021**	0.3154
$amax_{XY}$	0.78	[0.65, 0.95]	**0.0130**	1.0000	0.81	[0.69, 0.96]	**0.0133**	1.0000	0.81	[0.69, 0.93]	**0.0028**	0.3971	0.80	[0.68, 0.93]	**0.0055**	0.7296
$amax_{Z}$	0.86	[0.75, 0.99]	**0.0373**	1.0000	0.86	[0.74, 1.00]	0.0548	1.0000	0.90	[0.76, 1.06]	0.2199	1.0000	0.93	[0.83, 1.04]	0.2016	1.0000

Position	Standing															
Frame	Bottle				PCA				Velocity				Vertical			
Metric	OR	95% CI	p-value	Adjusted p-value	OR	95% CI	p-value	Adjusted p-value	OR	95% CI	p-value	Adjusted p-value	OR	95% CI	p-value	Adjusted p-value
$MACC_{XY}$	0.88	[0.70, 1.10]	0.2432	1.0000	0.83	[0.65, 1.04]	0.1033	1.0000	0.78	[0.62, 0.97]	**0.0269**	1.0000	0.82	[0.65, 1.04]	0.1079	1.0000
$MACC_{Z}$	0.75	[0.58, 0.95]	**0.0204**	1.0000	0.79	[0.62, 1.01]	0.0563	1.0000	0.89	[0.74, 1.08]	0.2441	1.0000	0.79	[0.62, 1.01]	0.0646	1.0000
$RACC_{XY}$	0.88	[0.71, 1.08]	0.2052	1.0000	0.81	[0.65, 1.02]	0.0700	1.0000	0.78	[0.63, 0.96]	**0.0211**	1.0000	0.81	[0.65, 1.03]	0.0878	1.0000
$RACC_{Z}$	0.75	[0.59, 0.95]	**0.0177**	1.0000	0.80	[0.64, 1.00]	0.0539	1.0000	0.88	[0.73, 1.05]	0.1652	1.0000	0.79	[0.64, 0.99]	**0.0368**	1.0000
$TOTEX_{XY}$	0.90	[0.75, 1.10]	0.3018	1.0000	0.89	[0.75, 1.06]	0.2227	1.0000	0.89	[0.75, 1.05]	0.1841	1.0000	0.90	[0.75, 1.08]	0.2474	1.0000
$TOTEX_{Z}$	0.87	[0.73, 1.02]	0.0952	1.0000	0.88	[0.73, 1.05]	0.1650	1.0000	0.88	[0.72, 1.06]	0.1828	1.0000	0.86	[0.72, 1.04]	0.1171	1.0000
$MJERK_{XY}$	0.84	[0.67, 1.05]	0.1308	1.0000	0.88	[0.70, 1.10]	0.2534	1.0000	0.79	[0.65, 0.97]	**0.0225**	1.0000	0.81	[0.65, 1.01]	0.0594	1.0000
$MJERK_{Z}$	0.72	[0.57, 0.92]	**0.0076**	0.9750	0.72	[0.58, 0.89]	**0.0032**	0.4442	0.83	[0.67, 1.04]	0.1027	1.0000	0.76	[0.60, 0.98]	**0.0329**	1.0000
$AREA_{CC}$	0.89	[0.76, 1.04]	0.1556	1.0000	0.85	[0.69, 1.06]	0.1516	1.0000	0.80	[0.66, 0.97]	**0.0253**	1.0000	0.84	[0.68, 1.05]	0.1253	1.0000
$AREA_{CE}$	0.90	[0.75, 1.09]	0.2686	1.0000	0.88	[0.70, 1.11]	0.2804	1.0000	0.84	[0.69, 1.02]	0.0759	1.0000	0.88	[0.70, 1.10]	0.2635	1.0000
$AREA_{SW}$	0.88	[0.71, 1.08]	0.2003	1.0000	0.85	[0.67, 1.08]	0.1771	1.0000	0.80	[0.65, 0.99]	**0.0369**	1.0000	0.88	[0.70, 1.10]	0.2536	1.0000
$amax_{XY}$	0.81	[0.69, 0.96]	**0.0141**	1.0000	0.83	[0.70, 1.00]	0.0524	1.0000	0.83	[0.69, 0.98]	**0.0289**	1.0000	0.81	[0.67, 0.97]	**0.0239**	1.0000
$amax_{Z}$	0.82	[0.68, 0.99]	**0.0405**	1.0000	0.84	[0.71, 0.99]	**0.0381**	1.0000	0.85	[0.73, 1.00]	0.0536	1.0000	0.86	[0.74, 1.00]	0.0519	1.0000