

Supplemental Figures

	Sex Difference Analysis				mTBI Analysis by Genetic Sex				Combinded Groups	
	B F Day 1 vs B M Day 1	PH F D1 vs PH M D1	B F D2 vs B M D2	PH F D2 vs PH M D2	PH F D1 relative to B F D1	PH M D1 relative to B M D1	PH F D2 relative to B F D2	PH M D2 relative to B M D2	PH D1 relative to B D1	PH D2 relative to B D2
N-acyl alanine										
<i>N-palmitoyl alanine</i>	0.0914989	0.11338	0.8012	0.7735923	0.266667	0.635538	0.41224	0.804086	0.300942	0.425334
<i>N-stearoyl alanine</i>	0.8085149	0.3835	0.2267	0.2863002	0.77542	0.975099	0.56357	0.895421	0.833867	0.672447
<i>N-oleoyl alanine</i>	0.1986729	0.212	0.81444	0.0890013	0.797045	0.006843	0.06203	0.16544	0.447152	0.053977
<i>N-linoleoyl alanine</i>	0.2970287	0.20297	0.67406	0.5897751	0.364262	0.658679	0.9407	0.098675	0.337372	0.576987
<i>N-arachidonoyl alanine</i>	0.009553	0.11488	0.287	BAL	0.054027	0.037398	BAL	0.09496	0.988047	0.037234
<i>N-docosahexaenoyl alanine</i>	0.4774381	0.51034	BAL	0.9360986	0.853715	0.666075	0.03221	BAL	0.753412	0.006771
N-acyl ethanolamine										
<i>N-palmitoyl ethanolamine</i>	0.6709869	0.81867	0.5763	0.6492657	0.280359	0.49693	0.83006	0.164523	0.202264	0.267469
<i>N-stearoyl ethanolamine</i>	0.1219766	0.00239	0.02265	0.0001628	0.589955	0.759095	0.22284	0.395816	0.951732	0.365617
<i>N-oleoyl ethanolamine</i>	0.9864747	0.94507	0.99823	0.6685717	0.791963	0.688914	0.61178	0.365937	0.617946	0.275936
<i>N-linoleoyl ethanolamine</i>	0.0205018	0.57082	0.8631	0.8142833	0.844235	0.051669	0.1847	0.337583	0.077857	0.081553
<i>N-arachidonoyl ethanolamine</i>	0.5752769	0.91817	0.62387	0.915751	0.548819	0.17171	0.99464	0.561924	0.179155	0.627138
<i>N-docosahexaenoyl ethanolamine</i>	0.57508	0.17066	0.73891	0.2300159	0.113727	0.72248	0.10053	0.9264	0.314844	0.189269
N-acyl GABA										
<i>N-palmitoyl GABA</i>	0.0855428	0.24004	0.85075	0.5157836	0.432208	0.433868	0.52518	0.784558	0.304282	0.544328
<i>N-stearoyl GABA</i>	0.2150089	0.91229	0.67248	0.8098876	0.162872	0.852409	0.98409	0.851263	0.347284	0.857218
<i>N-oleoyl GABA</i>	0.8722555	0.88669	0.48443	0.0847902	0.107177	0.366732	0.794	0.042109	0.087212	0.132448
<i>N-linoleoyl GABA</i>	0.9277775	0.10498	0.62386	0.2766856	0.822878	0.320367	0.05774	0.076148	0.299408	0.016863
<i>N-arachidonoyl GABA</i>	0.7404154	0.62245	0.92814	0.6340548	0.848857	0.468539	0.30429	0.391196	0.412893	0.144419
<i>N-docosahexaenoyl GABA</i>	0.8785978	0.84818	0.91664	0.2201941	0.977074	0.946626	0.79502	0.255117	0.976042	0.443387
N-acyl glycine										
<i>N-palmitoyl glycine</i>	0.0591935	0.87208	0.84912	0.9916782	0.161391	0.59942	0.04938	0.170831	0.151889	0.016346
<i>N-stearoyl glycine</i>	0.0411894	0.67171	0.22743	0.2067055	0.913289	0.025026	0.80218	0.032814	0.209226	0.165795
<i>N-oleoyl glycine</i>	0.0131839	0.25137	0.47028	0.229919	0.647748	0.049095	0.31477	0.129709	0.042055	0.067814
<i>N-linoleoyl glycine</i>	0.0116626	0.19117	0.54108	0.0570705	0.786058	0.014634	0.4647	0.027827	0.055027	0.035942
<i>N-arachidonoyl glycine</i>	0.2880452	BAL	0.86449	0.2767009	0.455076	BAL	0.77373	0.546077	0.190049	0.935043
<i>N-docosahexaenoyl glycine</i>	0.4762518	0.20439	0.17806	0.494413	0.475656	0.853542	0.35237	0.815988	0.533314	0.403885
N-acyl leucine										
<i>N-palmitoyl leucine</i>	0.0649264	0.40396	0.46855	0.722344	0.963387	0.057678	0.11594	0.411742	0.090061	0.112051
<i>N-stearoyl leucine</i>	0.1050655	0.11943	0.28744	0.2240368	0.385889	0.036617	0.23141	0.24662	0.244737	0.115952
<i>N-oleoyl leucine</i>	0.4260471	0.14288	0.46839	0.5511642	0.956173	0.031391	0.03341	0.4195	0.123803	0.134539
<i>N-linoleoyl leucine</i>	0.7266319	0.19905	0.11439	0.060133	0.300876	0.366487	0.24337	0.289814	0.825959	0.244366
<i>N-docosahexaenoyl leucine</i>	0.9352569	0.06676	0.63002	0.3536035	0.757157	0.029862	0.54263	0.287617	0.091875	0.93413
N-acyl methionine										
<i>N-palmitoyl methionine</i>	0.8227732	0.25523	0.02878	0.2339802	0.985681	0.196511	0.18127	0.743512	0.255927	0.401475
<i>N-stearoyl methionine</i>	0.1010347	0.0219	0.2453	0.8244894	0.43248	0.009103	0.27976	0.44556	0.086761	0.165839
<i>N-oleoyl methionine</i>	0.0959928	0.0563	0.20444	0.0615256	0.055845	0.063238	0.37905	0.183884	0.38348	0.189604
<i>N-linoleoyl methionine</i>	0.0519419	0.24764	0.09002	0.0097455	0.401557	0.124768	0.98877	0.133943	0.211558	0.24294
<i>N-arachidonoyl methionine</i>	0.975967	0.79425	0.2122	0.6138283	0.763083	0.953526	0.67028	0.379768	0.753345	0.381688
<i>N-docosahexaenoyl methionine</i>	0.010272	0.92373	0.2006	0.3477691	0.529653	0.192452	0.34367	0.512812	0.948032	0.261817
N-acyl phenylalanine										
<i>N-palmitoyl phenylalanine</i>	0.1767055	0.56366	0.62981	0.2200342	0.868	0.148925	0.27745	0.225765	0.16727	0.105411
<i>N-stearoyl phenylalanine</i>	0.9528506	0.17199	0.6447	0.2627822	0.684856	0.199814	0.77446	0.478436	0.337448	0.431433
<i>N-oleoyl phenylalanine</i>	0.0921463	0.23549	0.47708	0.0389219	0.184134	0.124954	0.77562	0.17255	0.755124	0.199291
<i>N-linoleoyl phenylalanine</i>	0.0488714	0.08905	0.07485	0.0221544	0.06337	0.071075	0.89088	0.452513	0.299115	0.589137
<i>N-arachidonoyl phenylalanine</i>	0.2907379	0.87382	0.39004	0.2359235	0.322738	0.807412	0.49928	0.718806	0.412574	0.513012
<i>N-docosahexaenoyl phenylalanine</i>	0.0574874	0.1459	0.29908	0.7629228	0.198821	0.04168	0.67375	0.805879	0.537375	0.793361

P=values of all interactions listed.

	Sex Difference Analysis				mTBI Analysis by Genetic Sex				Combinded Groups	
	B F Day 1 vs B M Day 1	PH F D1 vs PH M D1	B F D2 vs B M D2	PH F D2 vs PH M D2	PH F D1 relative to B F D1	PH M D1 relative to B M D1	PH F D2 relative to B F D2	PH M D2 relative to B M D2	PH D1 relative to B D1	PH D2 relative to B D2
N-acyl proline										
N-palmitoyl proline	0.80348	0.599095	0.023191	0.405005	0.44687	0.109299	0.032497	0.89413	0.100727	0.11993
N-stearoyl proline	BAL	BAL	BAL	BAL	BAL	BAL	BAL	BAL	0.014864	0.396919
N-oleoyl proline	0.182925	0.0676	0.023787	0.81131	0.062058	0.171742	0.554169	0.250353	0.050241	0.659085
N-linoleoyl proline	0.177759	0.284585	0.491309	0.766931	0.172164	0.366521	0.282828	0.37928	0.640456	0.200887
N-arachidonoyl proline	0.82596	0.893055	0.014274	0.549048	0.918244	0.727803	0.438488	0.500007	0.752327	0.694637
N-docosahexaenoyl proline	0.526658	0.922449	0.576514	0.537944	0.658352	0.640282	0.971808	0.868348	0.812524	0.785997
N-acyl serine										
N-palmitoyl serine	0.309287	0.465478	0.218613	0.19618	0.380434	0.253589	0.641952	0.597976	0.234378	0.746309
N-stearoyl serine	0.831469	0.433992	0.934762	0.394288	0.777495	0.473277	0.356261	0.928052	0.701435	0.384456
N-oleoyl serine	0.151832	0.305855	0.367703	0.033514	0.634145	0.181561	0.04588	0.553294	0.15868	0.575248
N-linoleoyl serine	BAL	0.783349	0.35143	0.224011	0.110418	BAL	0.340052	0.71465	0.099657	0.472325
N-arachidonoyl serine	BAL	BAL	BAL	BAL	BAL	BAL	BAL	BAL	0.598752	0.475567
N-docosahexaenoyl serine	BAL	BAL	0.887362	BAL	BAL	BAL	BAL	0.949191	0.179906	0.277093
N-acyl taurine										
N-palmitoyl taurine	0.020723	0.318364	0.880112	0.914847	0.20875	0.077078	0.1123	0.076462	0.653982	0.010934
N-stearoyl taurine	0.230627	0.203998	0.206638	0.806366	0.670596	0.051201	0.479752	0.322056	0.054048	0.403719
N-oleoyl taurine	0.398912	0.607436	0.891555	0.168045	0.63696	0.09711	0.748573	0.026466	0.115407	0.113573
N-arachidonoyl taurine	0.371115	0.302235	0.415131	0.938669	0.273406	0.388786	0.761522	0.516088	0.712361	0.679061
N-acyl tryptophan										
N-palmitoyl tryptophan	0.39215	0.739492	0.746118	0.4225	0.898403	0.414397	0.878526	0.5685	0.49956	0.508918
N-stearoyl tryptophan	0.518025	0.604261	0.889812	0.620532	0.360812	0.78383	0.905116	0.618784	0.625332	0.751559
N-oleoyl tryptophan	0.888869	0.232148	0.305089	0.724921	0.097716	0.408913	0.026637	0.163666	0.427012	0.043395
N-linoleoyl tryptophan	BAL	BAL	BAL	0.758078	BAL	BAL	BAL	0.445158	0.267099	0.517199
N-arachidonoyl tryptophan	BAL	BAL	BAL	BAL	BAL	BAL	BAL	BAL	BAL	BAL
N-docosahexaenoyl tryptophan	BAL	BAL	BAL	BAL	BAL	BAL	BAL	BAL	BAL	BAL
N-acyl tyrosine										
N-palmitoyl tyrosine	0.399811	0.035359	0.185107	0.19126	0.219295	0.075844	0.590724	0.481165	0.809043	0.395883
N-stearoyl tyrosine	0.932152	0.011422	0.115657	0.383099	0.322523	0.520417	0.542888	0.853737	0.730047	0.699094
N-oleoyl tyrosine	0.317214	0.185047	0.142739	0.100529	0.155412	0.2885	0.429623	0.369175	0.90973	0.308727
N-linoleoyl tyrosine	0.856194	0.050422	0.288653	0.109218	0.233188	0.298736	0.468057	0.401588	0.863565	0.578065
N-arachidonoyl tyrosine	0.554551	0.106136	0.414005	0.616466	0.435368	0.861721	0.422204	0.4447	0.432251	0.361563
N-docosahexaenoyl tyrosine	0.914238	BAL	BAL	0.536073	BAL	0.762824	BAL	0.602439	0.757579	0.737982
N-acyl valine										

	B F Day 1 vs B M Day 1	PH F D1 vs PH M D1	B F D2 vs B M D2	PH F D2 vs PH M D2	PH F D1 relative to B F D1	PH M D1 relative to B M D1	PH F D2 relative to B F D2	PH M D2 relative to B M D2	PH D1 relative to B D1	PH D2 relative to B D2
N-acyl alanine										
N-palmitoyl alanine	↑↑									
N-stearoyl alanine										
N-oleoyl alanine				↑↑↑↑		↑↑↑↑	↑↑↑↑			↑↑↑↑
N-linoleoyl alanine								↓		
N-arachidonoyl alanine	↑↑↑↑			BAL	↓↓↓	↑↑↑↑	BAL	↑↑		↑↑
N-docosahexaenoyl alanine			BAL				↓↓↓↓	BAL		↓↓↓↓
N-acyl ethanolamine										
N-palmitoyl ethanolamine										
N-stearoyl ethanolamine		↓↓	↓↓	↓↓						
N-oleoyl ethanolamine										
N-linoleoyl ethanolamine	↑↑					↑↑↑			↑	↑
N-arachidonoyl ethanolamine										
N-docosahexaenoyl ethanolamine										
N-acyl GABA										
N-palmitoyl GABA	↑↑									
N-stearoyl GABA										
N-oleoyl GABA				↓↓↓				↑↑↑	↑↑	
N-linoleoyl GABA							↑↑↑	↑↑↑		↑↑↑
N-arachidonoyl GABA										
N-docosahexaenoyl GABA										
N-acyl glycine										
N-palmitoyl glycine	↓↓						↑↑↑			↑↑↑
N-stearoyl glycine	↑↑					↑↑↑		↑↑		
N-oleoyl glycine	↑↑↑					↑↑↑↑			↑↑↑	↑↑↑
N-linoleoyl glycine	↑↑↑↑			↓↓↓		↑↑↑↑		↑↑↑	↑↑	↑↑↑
N-arachidonoyl glycine		BAL				BAL				
N-docosahexaenoyl glycine										
N-acyl leucine										
N-palmitoyl leucine	↑↑					↑↑↑			↑	
N-stearoyl leucine						↑↑↑				
N-oleoyl leucine						↑↑↑	↑↑			
N-linoleoyl leucine				↓↓↓						
N-docosahexaenoyl leucine		↓↓				↑↑			↑↑	
N-acyl methionine										
N-palmitoyl methionine			↓↓↓							
N-stearoyl methionine		↓↓↓				↑↑↑			↑↑	
N-oleoyl methionine	↑↑	↓↓↓		↓↓↓↓	↓↓	↑↑↑				
N-linoleoyl methionine	↑↑↑		↓↓↓↓	↓↓↓↓						
N-arachidonoyl methionine										
N-docosahexaenoyl methionine	↑↑									
N-acyl phenylalanine										
N-palmitoyl phenylalanine										
N-stearoyl phenylalanine										
N-oleoyl phenylalanine	↑↑			↓↓↓						
N-linoleoyl phenylalanine	↑↑	↓↓↓	↓↓↓	↓↓↓	↓↓	↑↑↑				
N-arachidonoyl phenylalanine										
N-docosahexaenoyl phenylalanine	↑↑↑					↑↑↑				

Heatmaps of all interactions listed.

[illegible]