

*Article*

# **Progesterone, Myo-Inositol, Dopamine and Prolactin Present in Follicular Fluid Have Differential Effects on Sperm Motility Subpopulations**

Shannen Keyser, Gerhard van der Horst and Liana Maree \*

Supplementary Material:

**Supplementary Table S1.** Comparison of mean SCA motility and kinematic parameters at 5 and 30 minutes for both the low motile (LM) and high motile (HM) sperm subpopulations after treatment with HTF, CAP, HD-C, 1.98  $\mu$ M progesterone, 3.96  $\mu$ M progesterone, 19.8  $\mu$ M progesterone and 11 mM myo-inositol (mean  $\pm$  SD) (n = 20).

HTF					CAP			HD-C			1.98 μM PRG			3.96 μM PRG			19.8 μM PRG			11 mM MYO			ANOVA
Mean ± SD	SP p	TP p		Mean ± SD	SP p	TP p	Mean ± SD	SP p	TP p	Mean ± SD	SP p	TP p	Mean ± SD	SP p	TP p	Mean ± SD	SP p	TP p	Mean ± SD	SP p	TP p		
Motile (%)																							
5 min	HM	66.9 ± 21.8***	<0.001	0.552	67.7 ± 20.0**	0.009	0.484	66.1 ± 20.2**	0.001	0.835	67.1 ± 19.0**	0.005	0.633	70.7 ± 19.2***	<0.001	0.734	69.9 ± 19.9***	<0.001	0.673	74.8 ± 15.8***	<0.001	0.233	0.784
	LM	32.5 ± 24.2***		0.462	48.6 ± 23.1**		0.629	41.9 ± 19.3**		0.871	47.0 ± 25.5**		0.950	45.1 ± 24.7***		0.542	44.1 ± 25.6***		0.799	45.6 ± 23.8***		0.897	0.558
	HM	62.4 ± 19.9***	<0.001		71.8 ± 19.2***	<0.001		64.6 ± 21.0**	0.002		64.0 ± 23.0*	0.018		70.6 ± 23.1**	0.006		68.4 ± 18.9**	0.002		67.1 ± 21.1**	0.005		0.768
	LM	26.8 ± 18.5***			44.9 ± 27.0***			40.8 ± 20.7**			46.5 ± 24.5*			49.8 ± 25.6**			45.5 ± 26.3**			45.9 ± 25.6**			0.139
Prog (%)																							
5 min	HM	48.8 ± 22.1**	0.001	0.585	56.8 ± 21.4**	0.001	0.414	54.2 ± 21.2**	0.005	0.564	55.8 ± 22.0*	0.014	0.734	60.1 ± 22.2***	<0.001	0.964	57.8 ± 21.3**	0.001	0.669	63.3 ± 19.9***	<0.001	0.146	0.524
	LM	21.1 ± 21.9**		0.235	34.5 ± 22.3**		0.987	32.8 ± 19.8**		0.490	35.6 ± 26.5*		0.843	35.1 ± 23.0***		0.734	32.5 ± 24.4**		0.669	34.2 ± 22.5***		0.769	0.600
	HM	44.7 ± 20.5***	<0.001		61.1 ± 21.4***	<0.001		50.0 ± 21.2**	0.006		53.3 ± 25.0*	0.020		59.8 ± 25.4**	0.005		55.2 ± 19.7**	0.003		53.8 ± 22.4*	0.024		0.332
	LM	12.4 ± 11.4*** <sup>a</sup>			34.4 ± 25.2*** <sup>b</sup>			28.1 ± 20.2** <sup>b</sup>			34.9 ± 26.1** <sup>b</sup>			37.5 ± 25.3*** <sup>b</sup>			33.6 ± 25.6*** <sup>b</sup>			36.2 ± 25.6** <sup>b</sup>			0.040
RP (%)																							
5 min	HM	20.2 ± 4 <sup>ab</sup>	0.001	0.869	28.2 ± 4 <sup>ac</sup>	0.004	0.396	17.9 ± 9.7** <sup>b</sup>	0.026	0.564	25.9 ± 14.3** <sup>abc</sup>	0.036	0.285	30.5 ± 4 <sup>c</sup>	<0.001	0.838	27.6 ± 4 <sup>c</sup>	0.001	0.787	31.2 ± 16.5*** <sup>c</sup>	0.004	0.771	0.039
	LM	8.0 ± 10.7**		0.452	15.2 ± 12.4**		0.742	11.6 ± 10.0*		0.741	17.4 ± 16.5*		0.921	15.4 ± 12.4***		0.578	13.7 ± 13.2**		0.787	17.8 ± 13.4**		0.647	0.293
	HM	20.8 ± 10.8***	<0.001		32.2 ± 15.7**	0.007		19.5 ± 9.8*	0.014		31.2 ± 17.3**	0.007		31.4 ± 17.1**	0.008		28.8 ± 15.8*	0.019		29.7 ± 18.4	0.099		0.293
	LM	4.7 ± 5.3*** <sup>a</sup>			18.2 ± 15.8** <sup>b</sup>			12.2 ± 12.6** <sup>ab</sup>			17.0 ± 13.6** <sup>b</sup>			18.2 ± 14.3** <sup>b</sup>			17.5 ± 14.8** <sup>b</sup>			20.6 ± 18.2 <sup>b</sup>			0.027
MP (%)																							
5 min	HM	28.7 ± 14.0**	0.002	0.286	28.2 ± 15.8	0.081	0.482	36.3 ± 15.2**	0.003	0.305	29.9 ± 14.6*	0.012	0.059	29.7 ± 14.2*	0.015	0.753	30.4 ± 12.1**	0.005	0.266	32.1 ± 14.3*** <sup>a</sup>	<0.001	0.042	0.675
	LM	13.1 ± 12.7**		0.154	19.4 ± 11.9		0.352	21.3 ± 12.2**		0.170	18.6 ± 13.9*		0.854	19.7 ± 12.6*		0.927	18.8 ± 13.1**		0.266	16.4 ± 12.0***		0.972	0.618
	HM	23.8 ± 11.0***	<0.001		28.9 ± 12.8***	<0.001		30.5 ± 16.4**	0.004		22.2 ± 11.3	0.259		28.3 ± 13.9*	0.029		26.4 ± 11.5**	0.005		24.1 ± 10.8***	0.009		0.327
	LM	7.8 ± 6.7***			16.2 ± 10.4***			15.9 ± 10.2**			17.9 ± 13.6			19.3 ± 12.8*			16.0 ± 11.8**			15.5 ± 9.7**			0.098
NP (%)																							
5 min	HM	18.0 ± 11.6	0.054	0.880	10.9 ± 5.2	0.132	0.666	11.9 ± 6.2	0.152	0.313	11.4 ± 6.3	0.549	0.708	10.6 ± 5.0	0.462	0.901	12.1 ± 8.6	0.888	0.46	11.5 ± 7.2	0.652	0.820	0.040
	LM	11.4 ± 5.6		0.339	14.0 ± 7.0		0.242	9.0 ± 5.0		0.262	11.3 ± 8.1		0.684	10.1 ± 6.7		0.296	11.6 ± 8.0		0.651	11.4 ± 4.5		0.292	0.354
	HM	17.7 ± 11.6	0.327		10.7 ± 6.8	0.511		14.6 ± 8.2	0.325		10.7 ± 5.0	0.633		10.8 ± 5.4	0.466		13.2 ± 7.8	0.606		13.2 ± 11.0	0.319		0.096
	LM	14.3 ± 10.4			11.7 ± 6.3			12.7 ± 8.6			11.6 ± 7.2			12.2 ± 7.4			12.2 ± 7.6			9.7 ± 5.8			0.716
Rapid (%)																							
5 min	HM	37.2 ± 20.9**	0.005	0.977	48.6 ± 20.5*	0.002	0.123	50.0 ± 21.5**	0.009	0.614	50.0 ± 20.6*	0.013	0.827	54.3 ± 23.7***	<0.001	0.867	51.7 ± 23.0**	0.001	0.714	57.1 ± 19.7***	<0.001	0.188	0.164
	LM	17.0 ± 20.0**		0.268	28.5 ± 20.6*		0.991	30.6 ± 19.5**		0.444	31.5 ± 25.3*		0.734	31.0 ± 21.1***		0.751	28.0 ± 23.0**		0.714	29.2 ± 20.2***		0.680	0.524
	HM	36.9 ± 18.7***	<0.001		56.0 ± 22.2***	<0.001		46.7 ± 21.3**	0.006		47.9 ± 24.0*	0.017		55.6 ± 26.0***	0.004		49.3 ± 20.0***	0.004		48.9 ± 21.7*	0.018		0.180
	LM	9.2 ± 9.3*** <sup>a</sup>			29.4 ± 23.4*** <sup>b</sup>			25.5 ± 19.1** <sup>b</sup>			29.6 ± 24.0* <sup>b</sup>			33.2 ± 23.9*** <sup>b</sup>			29.1 ± 23.3*** <sup>b</sup>			31.9 ± 23.5* <sup>b</sup>			0.020
Medium (%)																							
5 min	HM	16.6 ± 10.9**	0.002	0.571	11.4 ± 6.3	0.170	0.130	8.6 ± 4.8*	0.035	0.927	9.2 ± 4.9	0.112	0.938	9.1 ± 6.1	0.287	0.380	10.3 ± 6.8	0.121	0.796	9.8 ± 4.9	0.191	0.503	0.095
	LM	7.0 ± 3.9**		0.649	9.2 ± 4.4		0.463	5.5 ± 3.0*		0.427	7.0 ± 4.1		0.784	7.3 ± 4.2		0.667	7.5 ± 6.0		0.983	8.2 ± 5.8		0.897	0.336
	HM	13.5 ± 8.4*	0.028		8.8 ± 5.1	0.702		8.4 ± 4.7	0.262		9.1 ± 4.6	0.340		7.2 ± 3.3	0.573		10.2 ± 6.3	0.146		9.8 ± 5.3	0.544		0.073
	LM	6.6 ± 5.3*			8.2 ± 4.5			6.6 ± 4.6			8.3 ± 6.9			7.8 ± 4.3			7.9 ± 5.9			7.6 ± 4.8			0.915
Slow (%)																							
5 min	HM	13.1 ± 8.1	0.220	0.734	7.7 ± 3.9*	0.034	0.610	7.5 ± 4.3	0.235	0.387	7.9 ± 4.7	0.698	0.716	7.3 ± 4.0	0.429	0.637	7.9 ± 6.3	0.656	0.716	8.0 ± 4.9	0.489	0.955	0.196
	LM	8.5 ± 4.7		0.359	10.9 ± 5.5*		0.115	5.8 ± 4.0		0.141	8.5 ± 6.7		0.852	6.8 ± 5.2		0.163	8.6 ± 7.0		0.640	8.2 ± 4.0		0.174	0.118
	HM	12.0 ± 8.3	0.497		7.0 ± 4.4	0.278		9.5 ± 5.1	0.325		7.0 ± 3.8	0.496		9.3 ± 8.9	0.829		8.9 ± 6.8	0.981		8.4 ± 5.1	0.249		0.251
	LM	10.9 ± 9.1			8.5 ± 4.4			8.7 ± 6.8			8.5 ± 5.9			8.8 ± 5.6			9.0 ± 7.8			6.4 ± 4.7			0.575

Supplementary Table S1. Continued...

Motile VCL (µm/s)																											
5 min	HM	112.7 ± 24.5 <sup>a</sup>	0.066	0.692	130.0 ± 21.5 <sup>ab</sup>	0.005	0.342	139.3 ± 22.6 <sup>b</sup>	0.157	0.238	133.4 ± 23.0 <sup>ab</sup>	0.038	0.550	140.2 ± 27.9 <sup>ab</sup>	0.043	0.558	137.0 ± 25.2 <sup>ab</sup>	0.015	0.318	135.8 ± 22.1 <sup>ab</sup>	0.001	0.281		0.018			
	LM	97.9 ± 18.1 <sup>a</sup>		0.105	110.0 ± 21.5 <sup>ab</sup>		0.433	127.2 ± 26.3 <sup>b</sup>		0.227	116.6 ± 28.3 <sup>ab</sup>		0.980	123.0 ± 27.9 <sup>ab</sup>		0.685	117.0 ± 27.1 <sup>ab</sup>		0.558	113.2 ± 21.1 <sup>a</sup>		0.734		0.034			
30 min	HM	115.7 ± 22.0 <sup>ab</sup>	0.001		136.6 ± 24.7 <sup>ab</sup>	0.010		130.6 ± 18.8	0.068		129.2 ± 23.1	0.122		135.3 ± 28.2	0.066		129.5 ± 24.1 <sup>a</sup>	0.038		128.0 ± 21.2	0.152			0.185			
	LM	88.1 ± 19.4 <sup>ab</sup>			115.9 ± 26.0 <sup>ab</sup>			116.9 ± 22.9 <sup>b</sup>			116.4 ± 30.5 <sup>b</sup>			119.6 ± 27.4 <sup>b</sup>			112.0 ± 29.7 <sup>ab</sup>			116.0 ± 31.1 <sup>b</sup>				0.026			
Motile VAP (µm/s)																											
5 min	HM	61.5 ± 13.4 <sup>ab</sup>	0.008	0.727	67.5 ± 13.2 <sup>ab</sup>	0.003	0.395	63.3 ± 8.1	0.112	0.983	62.9 ± 10.5	0.162	0.437	69.5 ± 13.9 <sup>ab</sup>	0.002	0.690	67.8 ± 12.3 <sup>ab</sup>	0.002	0.473	69.4 ± 12.2 <sup>ab</sup>	<0.001	0.735		0.202			
	LM	49.6 ± 9.5 <sup>ab</sup>		0.208	56.1 ± 10.7 <sup>ab</sup>		0.489	58.4 ± 9.5		0.441	57.6 ± 12.9		0.949	57.2 ± 11.8 <sup>ab</sup>		0.892	55.7 ± 11.7 <sup>ab</sup>		0.824	56.8 ± 12.0 <sup>ab</sup>		0.548		0.384			
30 min	HM	59.9 ± 12.3 <sup>ab</sup>	0.002		70.7 ± 12.5 <sup>ab</sup>	0.002		63.3 ± 7.8	0.024		66.9 ± 13.2 <sup>a</sup>	0.031		67.8 ± 14.4 <sup>a</sup>	0.019		65.0 ± 13.5 <sup>a</sup>	0.044		68.1 ± 12.9	0.066			0.201			
	LM	46.5 ± 10.6 <sup>ab</sup>			58.1 ± 12.6 <sup>ab</sup>			55.8 ± 10.2			57.9 ± 13.7 <sup>a</sup>			57.7 ± 13.3 <sup>a</sup>			56.5 ± 13.5 <sup>a</sup>			59.5 ± 16.9				0.120			
Motile VSL (µm/s)																											
5 min	HM	47.6 ± 13.3	0.006	0.763	53.5 ± 14.8 <sup>ab</sup>	0.005	0.689	44.4 ± 10.7	0.183	0.834	47.6 ± 11.1	0.263	0.166	53.9 ± 13.2 <sup>ab</sup>	0.002	0.606	51.8 ± 11.7 <sup>ab</sup>	0.002	0.645	53.1 ± 12.6 <sup>a</sup>	0.014	0.945		0.127			
	LM	35.0 ± 9.8		0.288	42.5 ± 10.2 <sup>ab</sup>		0.625	39.7 ± 9.1		0.939	43.3 ± 13.4		0.799	41.4 ± 12.4 <sup>ab</sup>		0.671	40.3 ± 11.2 <sup>ab</sup>		0.527	43.3 ± 13.5 <sup>a</sup>		0.504		0.386			
30 min	HM	45.6 ± 10.5 <sup>ab</sup>	0.002		55.2 ± 12.6 <sup>a</sup>	0.014		43.7 ± 6.4	0.184		52.9 ± 13.6 <sup>a</sup>	0.010		51.9 ± 12.9 <sup>a</sup>	0.030		50.1 ± 12.6	0.071		53.4 ± 13.9	0.154			0.052			
	LM	32.4 ± 11.6 <sup>ab</sup>			44.0 ± 12.8 <sup>a</sup>			39.5 ± 10.9			42.4 ± 12.9 <sup>a</sup>			43.1 ± 13.5 <sup>a</sup>			42.7 ± 13.7			46.5 ± 17.4				0.090			
Motile STR (%)																											
5 min	HM	73.7 ± 10.4 <sup>ab</sup>	0.041	0.431	75.8 ± 9.8 <sup>a</sup>	0.166	0.746	65.9 ± 7.6 <sup>b</sup>	0.867	0.938	71.4 ± 8.4 <sup>a</sup>	0.823	0.215	74.8 ± 7.5 <sup>ab</sup>	0.046	0.486	73.8 ± 7.1 <sup>ab</sup>	0.029	0.828	73.3 ± 8.4 <sup>a</sup>	0.767	0.756		0.014			
	LM	65.9 ± 9.7 <sup>a</sup>		0.452	72.1 ± 8.3		0.609	65.5 ± 7.2		0.842	69.6 ± 11.9		0.668	69.2 ± 10.7 <sup>a</sup>		0.735	68.4 ± 8.6 <sup>a</sup>		0.439	71.4 ± 11.4		0.549		0.310			
30 min	HM	71.0 ± 8.3 <sup>ab</sup>	0.041		75.0 ± 7.3 <sup>a</sup>	0.090		66.1 ± 6.5 <sup>b</sup>	0.986		74.8 ± 8.3 <sup>a</sup>	0.051		73.3 ± 7.1 <sup>a</sup>	0.221		73.4 ± 5.8 <sup>a</sup>	0.305		74.1 ± 7.9 <sup>a</sup>	0.771			0.007			
	LM	64.3 ± 9.6 <sup>a</sup>			70.8 ± 8.8			66.1 ± 12.1			69.5 ± 9.4			70.2 ± 9.4			70.7 ± 10.6			71.6 ± 12.4				0.311			
Motile LIN (%)																											
5 min	HM	45.0 ± 10.1 <sup>ab</sup>	0.015	0.103	43.3 ± 10.9 <sup>a</sup>	0.412	0.611	32.5 ± 6.4 <sup>b</sup>	0.819	0.449	36.8 ± 7.7 <sup>bc</sup>	0.570	0.065	40.5 ± 8.2 <sup>ac</sup>	0.046	0.531	39.5 ± 6.6 <sup>bc</sup>	0.075	0.968	40.4 ± 8.3 <sup>ac</sup>	0.553	0.436		< 0.001			
	LM	36.6 ± 7.5 <sup>ab</sup>		0.722	40.9 ± 8.5 <sup>a</sup>		0.467	32.0 ± 6.4 <sup>b</sup>		0.409	38.2 ± 7.6 <sup>bc</sup>		0.697	35.4 ± 8.4 <sup>ab</sup>		0.525	36.0 ± 6.2 <sup>bc</sup>		0.157	38.9 ± 9.0 <sup>bc</sup>		0.784		0.018			
30 min	HM	39.8 ± 6.9 <sup>bc</sup>	0.163		41.8 ± 8.2 <sup>a</sup>	0.262		34.0 ± 4.8 <sup>b</sup>	0.973		41.1 ± 7.0 <sup>a</sup>	0.065		39.4 ± 6.9 <sup>a</sup>	0.312		39.4 ± 4.4 <sup>a</sup>	0.710		42.3 ± 7.7 <sup>a</sup>	0.297			0.010			
	LM	36.7 ± 6.9			39.2 ± 6.9			34.1 ± 8.3			37.4 ± 6.1			36.9 ± 6.8			38.8 ± 6.7			39.6 ± 8.8				0.252			
Motile WOB (%)																											
5 min	HM	56.8 ± 7.5 <sup>a</sup>	0.102	0.123	54.2 ± 8.4 <sup>bc</sup>	0.819	0.847	47.5 ± 4.3 <sup>b</sup>	0.649	0.083	50.2 ± 4.7 <sup>bc</sup>	0.333	0.061	52.5 ± 6.8 <sup>ac</sup>	0.095	0.892	51.6 ± 4.7 <sup>a</sup>	0.437	0.970	52.7 ± 5.8 <sup>ac</sup>	0.633	0.244		0.004			
	LM	52.9 ± 5.2 <sup>ab</sup>		0.527	53.7 ± 6.4 <sup>a</sup>		0.574	48.2 ± 4.0 <sup>b</sup>		0.339	51.6 ± 4.6 <sup>bc</sup>		0.804	49.2 ± 6.2 <sup>ab</sup>		0.395	50.6 ± 4.0 <sup>ab</sup>		0.089	51.8 ± 6.3 <sup>ab</sup>		0.580		0.022			
30 min	HM	53.4 ± 4.2	0.497		53.7 ± 5.9	0.524		49.9 ± 3.1	0.862		53.2 ± 4.6	0.650		52.3 ± 4.7	0.228		51.6 ± 2.8	0.275		54.6 ± 5.0	0.211			0.061			
	LM	54.7 ± 3.9 <sup>a</sup>			52.7 ± 4.6 <sup>ab</sup>			49.6 ± 4.7 <sup>b</sup>			51.9 ± 4.3 <sup>ab</sup>			50.6 ± 4.4 <sup>ab</sup>			52.8 ± 4.5 <sup>ab</sup>			52.8 ± 4.4 <sup>ab</sup>				0.024			
Motile ALH (µm)																											
5 min	HM	2.9 ± 0.7 <sup>a</sup>	0.572	0.201	3.5 ± 0.7 <sup>b</sup>	0.064	0.219	4.2 ± 0.8 <sup>b</sup>	0.444	0.253	3.9 ± 0.8 <sup>b</sup>	0.050	0.343	4.0 ± 0.9 <sup>b</sup>	0.351	0.676	3.9 ± 0.8 <sup>b</sup>	0.116	0.450	3.8 ± 0.7 <sup>ab</sup>	0.013	0.217		< 0.001			
	LM	2.8 ± 0.4 <sup>a</sup>		0.213	3.1 ± 0.7 <sup>bc</sup>		0.188	4.0 ± 1.0 <sup>b</sup>		0.189	3.4 ± 0.9 <sup>bc</sup>		0.843	3.7 ± 0.9 <sup>bc</sup>		0.709	3.5 ± 0.8 <sup>bc</sup>		0.510	3.2 ± 0.7 <sup>ac</sup>		0.720		< 0.001			
30 min	HM	3.3 ± 0.7 <sup>ab</sup>	0.002		3.8 ± 0.8	0.146		3.9 ± 0.6	0.145		3.6 ± 0.6	0.364		3.9 ± 0.9	0.234		3.7 ± 0.7	0.111		3.5 ± 0.6	0.333			0.103			
	LM	2.6 ± 0.5 <sup>ab</sup>			17.1 ± 64.7 <sup>b</sup>			3.6 ± 0.7 <sup>b</sup>			3.4 ± 0.9 <sup>b</sup>			3.6 ± 0.8 <sup>b</sup>			3.3 ± 0.9 <sup>b</sup>			3.3 ± 0.9 <sup>b</sup>				0.012			
Motile BCF (Hz)																											
5 min	HM	22.3 ± 2.9 <sup>ab</sup>	0.005	0.024	21.5 ± 3.5 <sup>bc</sup>	0.082	0.343	17.8 ± 2.6 <sup>b</sup>	0.848	0.616	19.3 ± 2.7 <sup>bc</sup>	0.668	0.877	20.2 ± 3.0 <sup>ac</sup>	0.032	0.234	19.5 ± 2.5 <sup>bc</sup>	0.023	0.517	20.2 ± 3.0 <sup>bc</sup>	0.775	0.935		< 0.001			
	LM	19.2 ± 2.9 <sup>a</sup>		0.082	19.8 ± 2.8		0.759	17.6 ± 2.2		0.481	18.8 ± 3.9		0.314	18.5 ± 2.5 <sup>a</sup>		0.572	17.8 ± 2.4 <sup>a</sup>		0.751	19.6 ± 3.4		0.751		0.119			
30 min	HM	20.0 ± 2.6 <sup>ab</sup>	0.012		20.5 ± 3.2 <sup>a</sup>	0.446		17.4 ± 2.0 <sup>b</sup>	0.666		19.4 ± 3.2 <sup>ab</sup>	0.101		19.2 ± 3.1 <sup>ab</sup>	0.205		19.0 ± 2.7 <sup>ab</sup>	0.131		20.2 ± 3.2 <sup>a</sup>	0.741			0.043			
	LM	17.7 ± 2.9 <sup>a</sup>			19.1 ± 3.7			17.0 ± 3.0			17.7 ± 3.6			18.0 ± 3.0			17.5 ± 3.8			19.8 ± 3.6				0.127			



Supplementary Table S1. Continued...

NPVCL (μm/s)																													
30 min	5 min	HM	61.5 ±4.0	0.501	0.819	61.9 ±7.7	0.370	0.417	64.5 ±4.9	0.695	0.541	62.4 ±6.2	0.345	0.742	62.5 ±6.9	0.918	0.802	64.3 ±8.6	0.100	0.814	63.1 ±5.4	0.345	0.650	0.728					
		LM	61.0 ±5.5		0.329	60.1 ±5.4		0.333	63.4 ±10.1		0.393	60.3 ±8.1		0.586	62.7 ±6.7		0.433	60.4 ±7.2		0.769	62.1 ±6.9		0.397	0.677					
		HM	61.0 ±7.4	0.267		63.8 ±8.0 <sup>*</sup>	0.011		63.2 ±6.8	0.316		61.7 ±8.5	0.911		62.0 ±7.3	0.656		61.4 ±13.7	0.181		61.1 ±8.1	0.552		0.939					
		LM	57.7 ±8.7			58.7 ±4.3 <sup>*</sup>			61.0 ±5.9			61.4 ±5.2			61.0 ±8.4			61.1 ±7.2			64.2 ±9.5			0.287					
NPVAP (μm/s)																													
30 min	5 min	HM	33.3 ±3.6	0.615	0.144	33.6 ±7.6	0.750	0.982	32.0 ±3.1	0.658	0.942	31.2 ±4.4	0.964	0.382	33.6 ±4.5	0.813	0.524	34.6 ±6.0	0.270	0.223	32.5 ±5.3	0.75	0.82	0.455					
		LM	32.5 ±4.8		0.944	32.9 ±5.9		0.334	32.8 ±7.1		0.85	31.3 ±6.4		0.700	33.3 ±3.8		0.856	32.1 ±4.6		0.223	31.8 ±4.7		0.599	0.893					
		HM	30.8 ±5.5	0.430		33.6 ±6.7	0.202		31.9 ±4.2	0.801		32.7 ±6.6	0.691		32.9 ±6.9	0.401		32.4 ±5.5	0.623		32.3 ±7.4	0.812		0.9					
		LM	32.3 ±5.3			31.5 ±3.7			31.5 ±4.8			32.0 ±5.8			32.9 ±8.1			33.2 ±5.0			32.8 ±7.5			0.951					
NPVSL (μm/s)																													
30 min	5 min	HM	22.7 ±5.9 <sup>***</sup>	0.090	0.031	23.4 ±8.1	0.741	0.340	18.0 ±2.8	0.640	0.744	20.0 ±4.8	0.857	0.653	21.7 ±5.9	0.841	0.238	22.4 ±7.2	0.159	0.224	20.6 ±6.7	0.930	0.634	0.118					
		LM	19.2 ±5.4		0.975	22.7 ±7.2		0.134	18.7 ±5.1		0.466	19.7 ±5.9		0.236	21.3 ±5.8		0.547	19.8 ±4.9		0.418	20.3 ±6.3		0.619	0.344					
		HM	18.4 ±4.9 <sup>***</sup>	0.704		21.4 ±6.0	0.364		17.7 ±2.9	0.854		19.8 ±6.3	0.401		19.7 ±5.0	0.859		20.2 ±4.3	0.597		20.7 ±6.2	0.733		0.383					
		LM	19.1 ±5.8			19.9 ±5.0			17.4 ±4.7			17.6 ±6.0			20.1 ±7.7			20.9 ±4.6			21.4 ±7.4			0.251					
NPSTR (%)																													
30 min	5 min	HM	63.4 ±12.0	0.080	0.060	63.5 ±11.8	0.668	0.223	53.7 ±5.9	0.657	0.378	57.9 ±11.7	0.551	0.870	61.4 ±11.7	0.948	0.192	61.7 ±12.3	0.361	0.214	57.9 ±11.4	0.695	0.785	0.087					
		LM	55.5 ±12.4		0.837	63.7 ±10.7		0.440	54.8 ±7.9		0.287	60.2 ±12.8		0.106	61.2 ±13.1		0.426	58.6 ±10.1		0.606	59.3 ±11.7		0.901	0.209					
		HM	56.1 ±9.1	0.938		59.5 ±10.1	0.888		51.9 ±5.8	0.893		57.4 ±10.5	0.307		56.7 ±12.3	0.684		57.9 ±6.6	0.375		58.7 ±8.4	0.740		0.288					
		LM	56.4 ±11.2			58.2 ±11.9			51.5 ±9.7			52.7 ±15.0			58.2 ±11.7			60.1 ±8.9			59.7 ±9.8			0.117					
NPLIN (%)																													
30 min	5 min	HM	37.8 ±10.7 <sup>***</sup>	0.127	0.021	38.4 ±12.8 <sup>*</sup>	0.980	0.132	27.7 ±4.3 <sup>b</sup>	0.363	0.692	31.6 ±9.3 <sup>ab</sup>	0.631	0.832	36.6 ±11.3 <sup>*</sup>	0.485	0.142	35.6 ±11.0 <sup>*</sup>	0.413	0.236	32.7 ±10.8 <sup>b</sup>	0.652	0.364	0.023					
		LM	32.3 ±8.9		0.835	38.3 ±12.1		0.175	29.3 ±5.8		0.615	33.0 ±9.7		0.219	34.3 ±10.8		0.609	33.2 ±7.6		0.442	33.1 ±10.2		0.993	0.163					
		HM	30.0 ±7.3 <sup>***</sup>	0.268		33.4 ±8.2	0.874		27.1 ±4.3	0.943		32.2 ±8.5	0.316		32.0 ±9.3	0.809		31.6 ±6.2	0.146		33.4 ±9.3	0.905		0.224					
		LM	33.5 ±10.2			33.9 ±9.2			28.0 ±8.5			29.4 ±9.8			32.7 ±9.8			35.0 ±7.1			33.1 ±9.9			0.201					
NPWOB (%)																													
30 min	5 min	HM	53.5 ±7.2	0.803	0.182	54.8 ±10.8	0.863	0.429	49.5 ±3.7	0.264	0.868	50.6 ±6.2	0.667	0.255	54.1 ±7.9	0.691	0.626	54.4 ±8.0	0.564	0.107	51.0 ±7.2	0.819	0.622	0.166					
		LM	54.1 ±6.9		0.267	55.3 ±9.1		0.454	51.4 ±5.9		0.948	51.5 ±7.4		0.700	53.2 ±7.3		0.810	53.2 ±5.1		0.585	51.5 ±8.1		0.997	0.516					
		HM	50.4 ±5.5 <sup>*</sup>	0.007		52.6 ±6.6	0.888		49.7 ±4.3	0.478		53.0 ±7.3	0.818		53.0 ±7.3	0.742		50.8 ±6.4	0.085		52.2 ±8.5	0.811		0.621					
		LM	57.0 ±7.2 <sup>*</sup>			52.2 ±7.7			51.2 ±7.4			52.5 ±8.8			53.7 ±7.9			54.2 ±6.3			51.5 ±9.2			0.376					
MPVCL (μm/s)																													
30 min	5 min	HM	124.7 ±24.8 <sup>*</sup>	0.926	0.285	138.8 ±23.9 <sup>ab</sup>	0.138	0.196	156.7 ±22.6 <sup>b</sup>	0.307	0.359	149.8 ±23.0 <sup>b</sup>	0.111	0.103	155.2 ±31.7 <sup>b</sup>	0.072	0.507	151.1 ±26.5 <sup>b</sup>	0.154	0.290	148.8 ±20.8 <sup>***</sup>	0.004	0.304	0.003					
		LM	123.9 ±18.0		0.527	127.8 ±25.5		0.118	148.7 ±22.7		0.121	138.0 ±24.6		0.564	139.4 ±26.2		0.383	140.5 ±22.0		0.33	129.7 ±21.3 <sup>***</sup>		0.240	0.025					
		HM	133.7 ±22.0	0.063		149.0 ±28.2	0.186		146.5 ±39.0	0.070		137.8 ±24.0	0.542		149.3 ±28.2	0.825		143.1 ±23.2	0.197		142.1 ±22.3	0.593		0.499					
		LM	119.8 ±17.9			138.9 ±21.0			139.3 ±25.3			142.5 ±27.1			147.3 ±33.2			133.3 ±26.4			138.1 ±25.3			0.077					
MPVAP (μm/s)																													
30 min	5 min	HM	64.7 ±10.1 <sup>*</sup>	0.036	0.836	67.6 ±9.4 <sup>*</sup>	0.034	0.581	67.8 ±7.5	0.174	0.554	64.1 ±11.9	0.335	0.466	70.5 ±12.5 <sup>**</sup>	0.003	0.629	69.5 ±9.7 <sup>**</sup>	0.006	0.229	70.8 ±7.7 <sup>***</sup>	<0.001	0.229	0.207					
		LM	57.9 ±7.4 <sup>*</sup>		0.520	62.0 ±8.0 <sup>*</sup>		0.279	63.4 ±5.3		0.704	62.8 ±6.8		0.091	60.5 ±8.2 <sup>**</sup>		0.192	62.2 ±7.0 <sup>**</sup>		0.561	61.7 ±8.7 <sup>***</sup>		0.413	0.439					
		HM	65.4 ±7.3 <sup>***</sup>	0.003		69.2 ±10.0	0.061		65.2 ±16.4	0.058		66.7 ±9.1	0.917		68.9 ±9.2	0.161		65.7 ±10.8	0.105		67.7 ±9.2	0.159		0.798					
		LM	55.6 ±9.6 <sup>***</sup>			64.3 ±6.4 <sup>ab</sup>			63.3 ±5.8 <sup>b</sup>			67.0 ±9.4 <sup>b</sup>			64.5 ±11.5 <sup>b</sup>			60.7 ±9.0 <sup>b</sup>			63.8 ±8.3 <sup>b</sup>			0.009					



Supplementary Table S1. Continued...

MP VSL (μm/s)																													
30 min	HM	45.1 ± 9.2 <sup>*</sup>	0.045	0.575	46.4 ± 9.2	0.253	0.590	40.7 ± 5.9	0.089	0.875	42.3 ± 6.2 <sup>*</sup>	0.882	0.045	47.2 ± 8.3 <sup>***</sup>	0.003	0.350	46.0 ± 7.4 <sup>***</sup>	0.007	0.107	46.1 ± 6.1	0.063	0.156	0.009						
	LM	39.0 ± 6.8 <sup>*</sup>		0.884	43.6 ± 7.1		0.849	37.1 ± 6.1		0.142	42.0 ± 6.9		0.430	39.1 ± 9.3 <sup>***</sup>		0.216	40.0 ± 6.7 <sup>***</sup>		0.366	40.7 ± 10.8		0.542	0.204						
	HM	43.6 ± 5.0 <sup>***</sup>	0.002		45.0 ± 7.3	0.373		40.4 ± 4.9	0.921		46.0 ± 5.8 <sup>*</sup>	0.209		45.0 ± 6.9	0.259		42.5 ± 6.6	0.868		44.0 ± 5.8	0.441		0.116						
	LM	37.8 ± 6.4 <sup>***</sup>			43.2 ± 6.4			40.2 ± 6.2			43.6 ± 6.8			42.4 ± 8.3			42.1 ± 8.7			42.4 ± 7.3			0.252						
MP STR (%)																													
30 min	HM	70.3 ± 12.8 <sup>*</sup>	0.542	0.490	68.8 ± 10.8 <sup>*</sup>	0.739	0.293	59.4 ± 8.3 <sup>ab</sup>	0.796	0.517	63.9 ± 7.4 <sup>ab</sup>	0.287	0.025	67.7 ± 9.2 <sup>ab</sup>	0.364	0.362	66.1 ± 10.3 <sup>ab</sup>	0.645	0.411	66.0 ± 7.5 <sup>ab</sup>	0.191	0.686	0.024						
	LM	67.7 ± 9.8		0.944	69.9 ± 11.0		0.595	59.6 ± 9.3		0.270	66.9 ± 10.7		0.724	64.8 ± 12.2		0.665	64.8 ± 8.9		0.263	66.6 ± 16.2		0.330	0.193						
	HM	67.5 ± 9.1	0.993		65.7 ± 9.0	0.294		60.1 ± 6.4	0.292		69.1 ± 7.2 <sup>*</sup>	0.194		65.7 ± 9.6	0.307		62.5 ± 14.0	0.074		65.1 ± 7.2	0.525		0.084						
	LM	67.5 ± 7.8			68.4 ± 7.8			63.9 ± 13.1			65.8 ± 8.8			66.4 ± 11.5			68.3 ± 11.6			66.8 ± 9.1			0.839						
MP LIN (%)																													
30 min	HM	42.4 ± 13.0 <sup>*</sup>	0.103	0.187	39.0 ± 12.5 <sup>ab</sup>	0.761	0.112	28.6 ± 7.7 <sup>d</sup>	0.679	0.195	31.8 ± 6.5 <sup>ab</sup>	0.243	0.033	34.6 ± 9.3 <sup>bc</sup>	0.359	0.645	34.3 ± 9.1 <sup>bc</sup>	0.542	0.833	35.0 ± 8.0 <sup>bc</sup>	0.684	0.742	0.003						
	LM	35.7 ± 8.4 <sup>ab</sup>		0.890	40.1 ± 11.7 <sup>a</sup>		0.291	27.7 ± 7.0 <sup>b</sup>		0.391	34.7 ± 9.2 <sup>ab</sup>		0.964	31.9 ± 11.0 <sup>ab</sup>		0.414	32.7 ± 9.5 <sup>ab</sup>		0.312	35.8 ± 12.5 <sup>ab</sup>		0.783	0.008						
	HM	37.4 ± 8.7	0.968		34.2 ± 10.0	0.054		29.3 ± 4.4	0.756		37.4 ± 7.8 <sup>*</sup>	0.146		34.2 ± 10.6	0.700		33.6 ± 5.0	0.390		34.7 ± 6.7	0.952		0.068						
	LM	35.4 ± 6.9			36.9 ± 7.9			31.7 ± 10.5			34.5 ± 8.2			33.3 ± 9.9			35.7 ± 10.0			34.9 ± 8.7			0.068						
MP WOB (%)																													
30 min	HM	56.1 ± 8.9 <sup>***</sup>	0.048	0.159	52.9 ± 9.8 <sup>bc</sup>	0.956	0.210	45.4 ± 5.5 <sup>b</sup>	0.770	0.183	46.8 ± 4.9 <sup>***</sup>	0.243	0.015	48.5 ± 6.6 <sup>bc,d</sup>	0.157	0.904	49.4 ± 6.2 <sup>bc</sup>	0.258	0.945	50.3 ± 6.4 <sup>cd</sup>	0.904	0.555	0.003						
	LM	50.0 ± 7.5 <sup>ab</sup>		0.862	53.0 ± 8.9 <sup>a</sup>		0.267	42.7 ± 11.1 <sup>b</sup>		0.187	48.8 ± 6.4 <sup>ab</sup>		0.351	46.5 ± 8.7 <sup>ab</sup>		0.382	47.3 ± 5.6 <sup>ab</sup>		0.374	50.9 ± 9.0 <sup>a</sup>		0.612	0.005						
	HM	52.3 ± 5.4	0.214		49.6 ± 7.3	0.691		47.7 ± 3.9	0.776		51.7 ± 5.8 <sup>***</sup>	0.699		49.4 ± 7.6	0.388		49.5 ± 4.8	0.859		50.7 ± 5.4	0.576		0.304						
	LM	49.5 ± 6.9			50.4 ± 6.3			47.1 ± 6.5			50.5 ± 5.7			47.3 ± 6.9			49.1 ± 7.7			49.6 ± 6.6			0.522						
MP ALH (μm)																													
30 min	HM	3.6 ± 0.9 <sup>*</sup>	0.728	0.281	3.9 ± 0.9 <sup>bc</sup>	0.322	0.114	4.8 ± 0.9 <sup>b</sup>	0.602	0.723	4.5 ± 0.8 <sup>bc</sup>	0.196	0.053	4.6 ± 1.1 <sup>bc</sup>	0.285	0.664	4.5 ± 1.0 <sup>bc</sup>	0.561	0.430	4.3 ± 0.8 <sup>bc</sup>	0.025	0.638	0.002						
	LM	3.7 ± 0.6 <sup>*</sup>		0.762	3.6 ± 0.9 <sup>a</sup>		0.116	4.6 ± 0.9 <sup>b</sup>		0.567	4.2 ± 0.9 <sup>ab</sup>		0.609	4.3 ± 1.0 <sup>ab</sup>		0.429	4.3 ± 0.8 <sup>ab</sup>		0.289	3.7 ± 0.9 <sup>***</sup>		0.111	0.002						
	HM	3.9 ± 0.8	0.253		4.4 ± 0.9	0.241		4.7 ± 0.6	0.404		4.0 ± 0.8	0.274		4.5 ± 1.0	0.857		4.2 ± 0.8	0.387		4.2 ± 0.7	0.924		0.110						
	LM	3.6 ± 0.7			4.0 ± 0.8			4.4 ± 1.1			4.3 ± 0.9			4.5 ± 1.1			4.0 ± 0.9			4.2 ± 0.9			0.084						
MP BCF (Hz)																													
30 min	HM	22.0 ± 3.4 <sup>***</sup>	0.017	0.009	20.3 ± 3.7 <sup>bc</sup>	0.290	0.089	17.2 ± 2.8 <sup>b</sup>	0.667	0.540	17.6 ± 2.6 <sup>b</sup>	0.97	0.243	18.8 ± 2.7 <sup>bc</sup>	0.234	0.127	18.3 ± 2.7 <sup>bc</sup>	0.116	0.664	19.3 ± 2.7 <sup>bc</sup>	0.487	0.132	<0.001						
	LM	19.4 ± 2.2 <sup>ab</sup>		0.312	19.1 ± 3.7 <sup>ab</sup>		0.700	16.8 ± 2.3 <sup>a</sup>		0.843	17.6 ± 3.6 <sup>ab</sup>		0.586	18.0 ± 2.2 <sup>ab</sup>		0.117	17.1 ± 2.5 <sup>a</sup>		0.577	20.0 ± 4.0 <sup>ab</sup>		0.044	0.006						
	HM	19.2 ± 2.3 <sup>***</sup>	0.442		18.6 ± 3.5	0.690		16.4 ± 1.7	0.904		18.5 ± 2.5	0.08		17.8 ± 3.4	0.346		17.9 ± 2.7	0.991		18.1 ± 2.6	0.629		0.165						
	LM	18.4 ± 2.8			19.7 ± 8.0			16.9 ± 4.4			17.0 ± 3.0			16.5 ± 3.8			17.5 ± 2.8			17.6 ± 3.4 <sup>*</sup>			0.292						
RP VCL (μm/s)																													
30 min	HM	137.2 ± 18.2 <sup>*</sup>	0.501	0.951	145.9 ± 16.1 <sup>ab</sup>	0.601	0.315	152.2 ± 11.3 <sup>ab</sup>	0.104	0.301	148.2 ± 15.6 <sup>ab</sup>	0.597	0.662	154.4 ± 18.4 <sup>b</sup>	0.401	0.665	153.0 ± 19.6 <sup>b</sup>	0.118	0.280	147.7 ± 14.3 <sup>ab</sup>	0.514	0.801	0.041						
	LM	133.6 ± 13.5		0.432	143.3 ± 17.4		0.468	144.9 ± 14.1		0.683	142.8 ± 18.7		0.947	149.5 ± 20.2		0.961	142.6 ± 23.7		0.865	144.9 ± 15.2		0.794	0.33						
	HM	137.5 ± 13.3	0.226		150.9 ± 17.1	0.495		148.4 ± 9.1	0.304		150.2 ± 16.0	0.163		152.0 ± 18.0	0.595		146.9 ± 17.7	0.554		146.6 ± 14.1	0.501		0.124						
	LM	130.2 ± 18.9			147.2 ± 18.5			142.3 ± 21.8			142.4 ± 20.6			149.3 ± 16.1			143.6 ± 17.7			143.7 ± 13.8			0.116						
RP VAP (μm/s)																													
30 min	HM	79.6 ± 11.7	0.105	0.837	79.8 ± 12.3	0.214	0.264	71.2 ± 17.7	0.692	0.183	77.2 ± 10.9	0.530	0.296	81.3 ± 11.7 <sup>***</sup>	0.005	0.954	80.8 ± 10.0 <sup>*</sup>	0.027	0.701	81.3 ± 10.3 <sup>*</sup>	0.042	0.492	0.139						
	LM	73.5 ± 11.1		0.861	75.4 ± 11.2		0.419	72.7 ± 7.6		0.964	75.2 ± 9.8		0.779	72.6 ± 8.1 <sup>***</sup>		0.047	74.4 ± 8.7 <sup>*</sup>		0.275	74.5 ± 11.8 <sup>*</sup>		0.181	0.947						
	HM	78.8 ± 8.8	0.084		83.7 ± 10.9	0.075		78.1 ± 6.7	0.069		80.7 ± 10.5 <sup>*</sup>	0.035		81.1 ± 11.4	0.344		79.6 ± 10.9	0.334		83.4 ± 10.3	0.118		0.519						
	LM	72.9 ± 9.3			78.0 ± 9.8			72.8 ± 9.2			74.4 ± 8.8 <sup>*</sup>			78.0 ± 9.6			76.9 ± 6.3			78.8 ± 7.9			0.171						

Supplementary Table S1. Continued...

RPVSL (μm/s)																							
30 min	HM	71.7 ±11.7	0.166	0.920	71.9 ±12.5	0.226	0.369	66.3 ±7.6	0.422	0.359	68.6 ±10.5	0.928	0.289	<b>72.3 ±11.1<sup>ac</sup></b>	<b>0.004</b>	0.782	<b>71.9 ±8.8<sup>a</sup></b>	<b>0.039</b>	0.617	72.7 ±10.2	0.061	0.437	0.436
	LM	66.4 ±11.1		0.895	67.6 ±11.5		0.329	64.2 ±7.6		0.921	68.8 ±8.6		0.326	<b>63.8 ±7.4<sup>ac</sup></b>		0.036	<b>66.7 ±7.4<sup>a</sup></b>		0.485	66.4 ±12.2		0.150	0.643
5 min	HM	71.3 ±9.1	0.108		<b>75.1 ±10.8<sup>a</sup></b>	<b>0.013</b>		68.7 ±7.0	0.154		<b>72.0 ±10.4<sup>a</sup></b>	<b>0.049</b>		73.2 ±11.8	0.242		70.5 ±10.0	0.371		75.2 ±10.5	0.166		0.383
	LM	65.1 ±11.1			<b>69.1 ±9.1<sup>a</sup></b>			64.5 ±9.4			<b>66.3 ±8.3<sup>a</sup></b>			69.4 ±9.5			68.1 ±6.3			71.1 ±7.5			0.334
RPSTR (%)																							
30 min	HM	90.5 ±2.0 <sup>a</sup>	0.580	0.595	89.9 ±2.6 <sup>a</sup>	0.318	0.836	87.4 ±2.2 <sup>b</sup>	0.480	0.378	88.5 ±1.9 <sup>bc</sup>	0.199	0.570	88.7 ±2.1 <sup>bc</sup>	0.211	0.753	88.8 ±1.6 <sup>bc</sup>	0.868	0.386	89.1 ±2.4 <sup>bc</sup>	0.484	0.364	<0.001
	LM	89.9 ±3.1		0.458	89.2 ±2.6		0.717	86.5 ±7.8		0.974	89.6 ±3.2		0.427	87.8 ±2.5		0.364	88.9 ±3.4		0.609	88.6 ±3.0		0.089	0.112
5 min	HM	90.1 ±2.4	0.340		89.8 ±2.7	0.270		87.8 ±1.9	0.809		88.9 ±2.2	0.986		88.5 ±1.8	0.993		89.2 ±1.6	0.221		89.8 ±2.3	0.764		0.024
	LM	88.8 ±4.7			88.9 ±2.5			88.2 ±3.5			88.9 ±2.5			88.5 ±2.4			88.5 ±2.3			90.0 ±2.2			0.334
RPLIN (%)																							
30 min	HM	54.4 ±7.3 <sup>a</sup>	0.123	0.624	50.9 ±8 <sup>ac</sup>	0.214	0.985	44.9 ±5.9 <sup>b</sup>	0.734	0.160	47.4 ±5.1 <sup>bc</sup>	0.264	0.715	<b>48.3 ±6.4<sup>a</sup> <sup>bc</sup></b>	<b>0.029</b>	0.975	49.1 ±4.7 <sup>bc</sup>	0.889	0.936	50.4 ±6.1 <sup>bc</sup>	0.071	0.271	<0.001
	LM	50.5 ±8.0		0.965	48.0 ±8.0		0.743	45.6 ±5.9		0.704	49.9 ±8.7		0.299	<b>44.2 ±5.7<sup>a</sup></b>		0.060	48.8 ±9.3		0.936	<b>46.7 ±7.1<sup>a</sup></b>		<b>0.043</b>	0.112
5 min	HM	53.2 ±6.2 <sup>a</sup>	0.604		50.9 ±6.2 <sup>ab</sup>	0.270		47.3 ±3.9 <sup>b</sup>	0.138		48.1 ±6.1 <sup>bc</sup>	0.848		48.3 ±5.1 <sup>bc</sup>	0.776		49.0 ±3.7 <sup>bc</sup>	0.466		52.4 ±6.2 <sup>bc</sup>	0.369		0.005
	LM	51.5 ±11.6			48.7 ±6.8			46.5 ±8.2			47.8 ±4.5			47.8 ±6.6			48.7 ±5.6			<b>50.8 ±5.0<sup>a</sup></b>			0.112
RPWOB (%)																							
30 min	HM	59.6 ±7.1 <sup>a</sup>	0.123	0.689	56.2 ±7.5 <sup>ac</sup>	0.489	0.849	51.0 ±5.5 <sup>b</sup>	0.811	0.121	53.2 ±4.6 <sup>bc</sup>	0.271	0.265	<b>54.0 ±6.0<sup>a</sup> <sup>bc</sup></b>	<b>0.022</b>	0.869	54.3 ±4.1 <sup>bc</sup>	0.993	0.829	<b>56.1 ±5.5<sup>a</sup> <sup>ac</sup></b>	<b>0.040</b>	0.387	0.011
	LM	55.7 ±7.3		0.895	54.7 ±5.9		0.896	51.5 ±5.4		0.673	55.3 ±7.4		0.296	<b>50.0 ±5.4<sup>a</sup></b>		<b>0.029</b>	54.4 ±8.3		0.829	<b>52.3 ±6.5<sup>a</sup></b>		<b>0.038</b>	0.054
5 min	HM	58.6 ±5.5 <sup>a</sup>	0.661		56.5 ±5.5 <sup>ac</sup>	0.414		53.7 ±3.4 <sup>b</sup>	0.098		54.8 ±4.5 <sup>bc</sup>	0.303		54.3 ±4.7 <sup>bc</sup>	0.890		54.6 ±3.4 <sup>bc,d</sup>	0.512		57.5 ±5.6 <sup>cd</sup>	0.367		0.013
	LM	57.3 ±10.0			54.9 ±7.3			52.4 ±7.1			53.4 ±4.0			<b>54.0 ±6.4<sup>a</sup></b>			54.7 ±5.3			<b>56.1 ±4.3<sup>a</sup></b>			0.127
RPALH (μm)																							
30 min	HM	3.3 ±0.6 <sup>a</sup>	0.843	0.254	3.8 ±0.8 <sup>b</sup>	0.968	0.506	4.3 ±0.7 <sup>b</sup>	0.274	0.658	4.1 ±0.7 <sup>b</sup>	0.244	0.853	4.1 ±0.8 <sup>b</sup>	0.594	0.735	4.1 ±0.8 <sup>b</sup>	0.568	0.735	3.9 ±0.6 <sup>b</sup>	0.666	0.988	<0.001
	LM	3.4 ±0.7		0.570	3.8 ±0.7		0.227	4.0 ±0.8		0.497	3.8 ±0.9		0.593	4.3 ±1.0		0.902	4.0 ±1.0		0.913	4.0 ±0.7		0.666	0.154
5 min	HM	3.5 ±0.5 <sup>a</sup>	0.841		4.0 ±0.7 <sup>ab</sup>	0.703		4.2 ±0.5 <sup>b</sup>	0.942		4.1 ±0.6 <sup>b</sup>	0.298		4.2 ±0.7 <sup>b</sup>	0.870		4.1 ±0.6 <sup>b</sup>	0.794		3.9 ±0.7 <sup>bc</sup>	0.967		0.017
	LM	3.4 ±1.0			4.0 ±0.6			4.2 ±0.7			3.9 ±0.7			4.2 ±0.7			4.0 ±0.8			3.9 ±0.7			0.059
RPBCF (Hz)																							
30 min	HM	<b>23.7 ±2.6<sup>a</sup></b>	0.105	<b>0.034</b>	24.1 ±3.0 <sup>bc</sup>	0.189	0.191	20.5 ±3.4 <sup>b</sup>	0.342	0.925	22.1 ±2.9 <sup>bc</sup>	0.461	0.761	22.6 ±3.0 <sup>bc</sup>	0.256	0.163	22.1 ±2.7 <sup>bc</sup>	0.774	0.332	22.6 ±2.8 <sup>bc</sup>	0.138	0.871	<0.001
	LM	24.0 ±2.7		0.662	22.8 ±3.3		0.666	21.6 ±3.5		0.061	22.8 ±3.7		0.209	21.5 ±3.0		0.432	21.8 ±5.0		0.844	20.0 ±6.1		0.098	0.097
5 min	HM	<b>23.7 ±2.7<sup>a</sup></b>	0.778		22.8 ±3.4	0.622		20.4 ±2.8	0.407		21.8 ±3.5	0.700		20.7 ±4.9	0.733		21.4 ±2.2	0.823		22.8 ±3.3	0.723		0.097
	LM	23.3 ±5.3			21.3 ±5.7			19.6 ±2.7			20.7 ±5.0			20.8 ±3.4			21.6 ±2.0			23.1 ±3.4			0.110

ALH, average path velocity; BCF, beat cross frequency; CAP, capacitating-HTF; HD-C, HD capacitation medium; HTF, human tubal fluid; HM, high motile subpopulation; LIN, linearity; LM, low motile subpopulation; MP, medium-progressive; min, minutes; MYO, myo-inositol; NP, non-progressive; PRG, progesterone; Prog, progressive; RP, rapid-progressive; SD, standard deviation; SP *p*, t-test between subpopulations; STR, straightness; TP *p*, t test between time points; VAP, average path velocity; VCL, curvilinear velocity; VSL, straight-line velocity; WOB, wobble. Values labelled in bold with an asterisks in the same column were significantly different between the HM and LM subpopulations for individual media and SCA parameters (\**p* < 0.05, \*\**p* < 0.01 and \*\*\**p* < 0.001). Values labelled in bold and red with an asterisks in the same column were significantly different between the 5 and 30 minutes for individual subpopulations and media (\**p* < 0.05 and \*\**p* < 0.01). Student's t-test was used or the Mann-Whitney test when normal distribution was absent. <sup>a, b, c, d</sup> Values labelled with different superscript letters in the same row were significantly different between the various media for individual subpopulations and SCA parameters. One-way ANOVA was used for parametric distributions or Kruskal-Wallis test for non-parametric distributions.

**Supplementary Table S2.** Comparison of mean SCA motility and kinematic parameters at 5 and 30 minutes for both the low motile (LM) and high motile (HM) sperm subpopulations after treatment with HTF, CAP, 20 nM, 100 nM and 1  $\mu$ M dopamine (mean  $\pm$  SD) (n = 20).

HTF					CAP			20 nM DOPA			100 nM DOPA			1 $\mu$ M DOPA			ANOVA
		Mean $\pm$ SD	SP <i>p</i>	TP <i>p</i>	Mean $\pm$ SD	SP <i>p</i>	TP <i>p</i>	Mean $\pm$ SD	SP <i>p</i>	TP <i>p</i>	Mean $\pm$ SD	SP <i>p</i>	TP <i>p</i>	Mean $\pm$ SD	SP <i>p</i>	TP <i>p</i>	
Prog (%)																	
5 min	HM	44.5 $\pm$ 23.5 <sup>***</sup>	<0.001	0.251	51.4 $\pm$ 21.1 <sup>***</sup>	<0.001	0.944	57.4 $\pm$ 27.1 <sup>***</sup>	<0.001	0.415	54.5 $\pm$ 22.2 <sup>***</sup>	<0.001	0.318	57.0 $\pm$ 25.0	0.174	0.204	0.306
	LM	18.4 $\pm$ 15.7 <sup>***</sup>		0.497	26.7 $\pm$ 17.3 <sup>***</sup>		0.190	29.2 $\pm$ 17.5 <sup>***</sup>		0.849	28.7 $\pm$ 18.2 <sup>*</sup>		0.550	31.1 $\pm$ 25.5		0.968	0.140
30 min	HM	37.0 $\pm$ 22.5 <sup>***</sup>	<0.001		51.0 $\pm$ 25.4 <sup>***</sup>	<0.001		51.4 $\pm$ 25.6 <sup>**</sup>	0.003		48.1 $\pm$ 24.7 <sup>***</sup>	0.011		47.4 $\pm$ 27.6	0.968		0.257
	LM	14.9 $\pm$ 14.3 <sup>***a</sup>			21.7 $\pm$ 20.0 <sup>***ab</sup>			30.3 $\pm$ 21.0 <sup>***b</sup>			30.7 $\pm$ 20.0 <sup>***ab</sup>			30.5 $\pm$ 22.0 <sup>b</sup>			0.017
Motile (%)																	
5 min	HM	60.8 $\pm$ 24.0 <sup>***</sup>	<0.001	0.170	67.4 $\pm$ 19.6 <sup>***</sup>	<0.001	0.854	66.0 $\pm$ 26.2 <sup>***</sup>	<0.001	0.388	65.6 $\pm$ 22.5 <sup>***</sup>	<0.001	0.377	66.2 $\pm$ 22.3	0.273	0.222	0.875
	LM	31.8 $\pm$ 24.5 <sup>***</sup>		0.646	40.9 $\pm$ 21.9 <sup>***</sup>		0.306	39.6 $\pm$ 21.2 <sup>***</sup>		0.667	40.3 $\pm$ 22.3 <sup>***</sup>		0.781	41.4 $\pm$ 26.4		0.857	0.583
30 min	HM	51.3 $\pm$ 24.4 <sup>**</sup>	0.001		64.0 $\pm$ 26.6 <sup>***</sup>	<0.001		60.5 $\pm$ 27.2 <sup>*</sup>	0.011		59.0 $\pm$ 25.8 <sup>*</sup>	0.015		57.9 $\pm$ 24.9	0.857		0.521
	LM	28.5 $\pm$ 20.5 <sup>**</sup>			34.0 $\pm$ 25.0 <sup>***</sup>			42.4 $\pm$ 23.6 <sup>*</sup>			42.2 $\pm$ 22.6 <sup>*</sup>			40.5 $\pm$ 23.9			0.167
RP (%)																	
5 min	HM	18.9 $\pm$ 14.4 <sup>***</sup>	<0.001	0.443	25.2 $\pm$ 17.8 <sup>***</sup>	<0.001	0.778	27.5 $\pm$ 17.7 <sup>**</sup>	0.003	0.907	28.4 $\pm$ 15.1 <sup>**</sup>	0.001	0.497	30.5 $\pm$ 20.3	0.946	0.946	0.160
	LM	6.6 $\pm$ 7.3 <sup>***</sup>		0.856	10.7 $\pm$ 8.9 <sup>***</sup>		0.248	12.8 $\pm$ 8.6 <sup>**</sup>		0.771	13.1 $\pm$ 11.7 <sup>**</sup>		0.606	16.2 $\pm$ 17.5		0.834	0.056
30 min	HM	15.0 $\pm$ 11.2 <sup>***a</sup>	0.006		26.5 $\pm$ 17.8 <sup>***b</sup>	<0.001		28.7 $\pm$ 17.9 <sup>***b</sup>	<0.001		25.4 $\pm$ 16.6 <sup>***b</sup>	0.006		30.2 $\pm$ 19.9 <sup>b</sup>	0.834		0.017
	LM	6.3 $\pm$ 7.5 <sup>**</sup>			9.4 $\pm$ 11.9 <sup>***</sup>			13.4 $\pm$ 11.6 <sup>***</sup>			13.9 $\pm$ 9.8 <sup>**</sup>			14.4 $\pm$ 13.9			0.056
MP (%)																	
5 min	HM	25.7 $\pm$ 18.7 <sup>**</sup>	0.003	0.727	26.3 $\pm$ 17.7 <sup>*</sup>	0.024	0.977	29.9 $\pm$ 15.9 <sup>**</sup>	0.002	0.106	26.6 $\pm$ 14.7 <sup>**</sup>	0.002	0.516	26.5 $\pm$ 15.6 <sup>**</sup>	0.004	0.060	0.908
	LM	11.8 $\pm$ 9.4 <sup>**</sup>		0.194	15.9 $\pm$ 11.0 <sup>*</sup>		0.236	16.5 $\pm$ 10.3 <sup>**</sup>		0.915	15.6 $\pm$ 7.9 <sup>**</sup>		0.910	14.9 $\pm$ 11.3 <sup>**</sup>		0.704	0.501
30 min	HM	22.0 $\pm$ 13.6 <sup>***</sup>	<0.001		24.5 $\pm$ 15.1 <sup>**</sup>	0.002		22.7 $\pm$ 14.8	0.127		22.7 $\pm$ 12.5	0.114		19.7 $\pm$ 15.3	0.704		0.836
	LM	8.6 $\pm$ 7.8 <sup>***a</sup>			12.3 $\pm$ 10.2 <sup>***ab</sup>			16.9 $\pm$ 11.5 <sup>ab</sup>			16.8 $\pm$ 12.2 <sup>ab</sup>			16.1 $\pm$ 11.9 <sup>b</sup>			0.035
NP (%)																	
5 min	HM	16.3 $\pm$ 8.3 <sup>a</sup>	0.101	0.574	16.0 $\pm$ 12.2 <sup>ac</sup>	0.946	0.388	8.6 $\pm$ 4.5 <sup>b</sup>	0.287	0.692	11.1 $\pm$ 5.4 <sup>bc</sup>	0.758	0.503	9.2 $\pm$ 7.3 <sup>c</sup>	0.290	0.290	< 0.001
	LM	13.4 $\pm$ 12.5		0.976	14.2 $\pm$ 7.9		0.286	10.4 $\pm$ 7.2		0.421	11.7 $\pm$ 8.1		0.828	10.2 $\pm$ 4.5		0.899	0.441
30 min	HM	14.3 $\pm$ 8.4	0.522		13.0 $\pm$ 9.6	0.854		9.1 $\pm$ 4.8	0.100		10.9 $\pm$ 7.5	0.665		11.5 $\pm$ 8.8	0.653		0.305
	LM	13.7 $\pm$ 10.8			12.3 $\pm$ 9.0			12.1 $\pm$ 7.6			11.5 $\pm$ 6.4			10.0 $\pm$ 6.0			0.920
Rapid (%)																	
5 min	HM	29.9 $\pm$ 19.8 <sup>***a</sup>	<0.001	0.873	40.9 $\pm$ 22.3 <sup>***ab</sup>	<0.001	0.557	50.0 $\pm$ 27.0 <sup>***b</sup>	<0.001	0.520	47.1 $\pm$ 21.0 <sup>***b</sup>	<0.001	0.491	49.3 $\pm$ 24.2 <sup>b</sup>	0.240	0.301	0.012
	LM	11.6 $\pm$ 10.3 <sup>***a</sup>		0.711	19.6 $\pm$ 14.2 <sup>***b</sup>		0.313	22.2 $\pm$ 13.4 <sup>***b</sup>		0.933	22.8 $\pm$ 16.0 <sup>***b</sup>		0.657	27.9 $\pm$ 23.6 <sup>b</sup>		0.818	0.027
30 min	HM	30.8 $\pm$ 20.8 <sup>***</sup>	<0.001		45.0 $\pm$ 26.1 <sup>***</sup>	<0.001		45.3 $\pm$ 24.7 <sup>***</sup>	<0.001		42.9 $\pm$ 23.6 <sup>**</sup>	0.007		41.7 $\pm$ 26.8	0.818		0.211
	LM	11.3 $\pm$ 11.9 <sup>***a</sup>			16.8 $\pm$ 16.0 <sup>***ac</sup>			22.5 $\pm$ 15.4 <sup>***bc</sup>			24.8 $\pm$ 17.1 <sup>***bc</sup>			29.0 $\pm$ 23.9 <sup>b</sup>			0.005
Medium (%)																	
5 min	HM	18.1 $\pm$ 14.3 <sup>***a</sup>	0.007	0.009	13.4 $\pm$ 9.6 <sup>ab</sup>	0.273	0.148	9.4 $\pm$ 7.9 <sup>b</sup>	0.961	0.786	10.2 $\pm$ 5.2 <sup>ab</sup>	0.107	0.207	9.4 $\pm$ 8.0 <sup>b</sup>	0.295	0.295	0.046
	LM	9.2 $\pm$ 7.7 <sup>**</sup>		0.197	10.7 $\pm$ 7.2		0.133	9.4 $\pm$ 7.4		0.522	8.0 $\pm$ 6.5		0.543	5.5 $\pm$ 5.0		0.180	0.086
30 min	HM	9.6 $\pm$ 7.9 <sup>**</sup>	0.165		9.3 $\pm$ 7.9	0.560		9.1 $\pm$ 8.0	0.265		8.7 $\pm$ 6.5	0.812		7.5 $\pm$ 7.0	0.180		0.876
	LM	6.7 $\pm$ 5.6			7.7 $\pm$ 6.8			10.8 $\pm$ 7.7			8.6 $\pm$ 5.7			6.9 $\pm$ 4.6			0.130
Slow (%)																	
5 min	HM	12.9 $\pm$ 7.8 <sup>a</sup>	0.148	0.327	13.1 $\pm$ 12.0 <sup>a</sup>	0.839	0.304	6.5 $\pm$ 3.9 <sup>b</sup>	0.289	0.719	7.1 $\pm$ 4.9 <sup>b</sup>	0.273	0.684	7.5 $\pm$ 6.0 <sup>b</sup>	0.594	0.594	0.001
	LM	11.0 $\pm$ 11.0		0.968	10.6 $\pm$ 6.2		0.256	8.0 $\pm$ 5.8		0.528	9.5 $\pm$ 7.3		0.796	8.0 $\pm$ 4.2		0.779	0.533
30 min	HM	10.9 $\pm$ 6.9	0.689		9.7 $\pm$ 7.0	0.823		6.2 $\pm$ 3.2 <sup>*</sup>	0.036		7.4 $\pm$ 4.5	0.451		8.4 $\pm$ 6.1	0.654		0.194
	LM	10.6 $\pm$ 8.7			9.5 $\pm$ 7.9			9.0 $\pm$ 5.7 <sup>*</sup>			8.6 $\pm$ 5.5			7.7 $\pm$ 5.0			0.656



Supplementary Table S2. Continued...

Motile VCL (μm/s)																			
5 min	HM	101.0 ± 21.0 <sup>***a</sup>	0.015	0.144	115.5 ± 26.2 <sup>***b</sup>	0.026	0.083	137.2 ± 29.0 <sup>***c</sup>	<0.001	0.393	134.1 ± 22.7 <sup>***c</sup>	0.005	0.299	132.6 ± 25.4 <sup>***c</sup>	0.027	0.865	<0.001		
	LM	87.6 ± 16.3 <sup>***a</sup>		0.554	100.9 ± 18.1 <sup>***b</sup>		0.909	107.3 ± 18.0 <sup>***bc</sup>		0.872	115.4 ± 21.8 <sup>***c</sup>		0.599	114.9 ± 29.1 <sup>***c</sup>		0.862	<0.001		
30 min	HM	110.7 ± 24.9 <sup>***a</sup>	<0.001		128.9 ± 27.3 <sup>***b</sup>	<0.001		130.8 ± 23.5 <sup>***b</sup>	<0.001		129.4 ± 27.2 <sup>***b</sup>	0.009		131.2 ± 31.2 <sup>ab</sup>	0.089		0.038		
	LM	84.5 ± 19.3 <sup>***a</sup>			100.2 ± 18.4 <sup>***b</sup>			108.1 ± 17.6 <sup>***bc</sup>			111.7 ± 17.4 <sup>***bc</sup>			116.3 ± 28.6 <sup>c</sup>			<0.001		
Motile VAP (μm/s)																			
5 min	HM	56.4 ± 9.6 <sup>***a</sup>	<0.001	0.320	59.1 ± 11.6 <sup>***ab</sup>	0.012	0.565	63.7 ± 10.1 <sup>***ab</sup>	<0.001	0.836	63.5 ± 9.7 <sup>***b</sup>	0.002	0.272	64.9 ± 11.3 <sup>b</sup>	0.467	0.392	0.022		
	LM	45.9 ± 10.5 <sup>***a</sup>		0.147	51.6 ± 8.5 <sup>***b</sup>		0.244	53.7 ± 5.6 <sup>***bc</sup>		0.85	55.8 ± 6.9 <sup>***c</sup>		0.267	55.5 ± 14.1 <sup>bc</sup>		0.897	<0.001		
30 min	HM	53.4 ± 10.9 <sup>***a</sup>	<0.001		60.9 ± 10.4 <sup>***b</sup>	<0.001		63.1 ± 9.0 <sup>***b</sup>	<0.001		60.6 ± 8.7 <sup>***b</sup>	0.004		61.8 ± 13.9 <sup>b</sup>	0.064		0.018		
	LM	41.8 ± 9.1 <sup>***a</sup>			48.6 ± 9.0 <sup>***b</sup>			53.3 ± 7.7 <sup>***b</sup>			53.5 ± 7.5 <sup>***b</sup>			54.9 ± 11.6 <sup>b</sup>			<0.001		
Motile VSL (μm/s)																			
5 min	HM	46.0 ± 10.7 <sup>***a</sup>	0.001	0.014	47.4 ± 13.6 <sup>***a</sup>	0.023	0.734	49.2 ± 11.0 <sup>***a</sup>	0.018	0.541	48.9 ± 10.2	0.076	0.677	51.3 ± 12.7 <sup>***a</sup>	0.013	0.403	0.582		
	LM	34.7 ± 12.7 <sup>***a</sup>		0.121	38.4 ± 10.8 <sup>***ab</sup>		0.442	41.7 ± 7.1 <sup>***b</sup>		0.963	42.6 ± 8.3 <sup>***b</sup>		0.197	41.5 ± 14.0 <sup>***ab</sup>		0.916	0.039		
30 min	HM	38.4 ± 10.5 <sup>***a</sup>	0.005		47.3 ± 11.1 <sup>***b</sup>	<0.001		50.3 ± 9.4 <sup>***b</sup>	0.002		47.1 ± 7.5 <sup>***b</sup>	0.004		48.0 ± 14.6 <sup>b</sup>	0.071		0.002		
	LM	29.5 ± 10.5 <sup>***a</sup>			36.1 ± 9.8 <sup>***b</sup>			41.6 ± 9.8 <sup>***b</sup>			39.9 ± 9.2 <sup>***b</sup>			41.2 ± 11.0 <sup>b</sup>			<0.001		
Motile STR (%)																			
5 min	HM	57.8 ± 8.5 <sup>***a</sup>	0.036	<0.001	53.7 ± 7.7	0.140	0.436	49.5 ± 8.2	0.992	0.282	49.6 ± 6.2	0.959	0.612	51.9 ± 7.7 <sup>***a</sup>	0.034	0.327	0.410		
	LM	54.0 ± 8.4 <sup>***a</sup>		0.145	52.9 ± 7.0		0.368	52.6 ± 6.6		0.793	51.8 ± 6.2		0.375	50.8 ± 7.3 <sup>***a</sup>		0.734	0.623		
30 min	HM	49.9 ± 4.9 <sup>***a</sup>	0.298		49.2 ± 6.6 <sup>***ab</sup>	0.047		50.6 ± 5.5 <sup>b</sup>	0.255		49.0 ± 4.8 <sup>b</sup>	0.124		48.7 ± 5.9 <sup>ab</sup>	0.465		0.019		
	LM	50.9 ± 8.1			50.0 ± 6.0 <sup>***a</sup>			51.0 ± 6.6			50.2 ± 5.4			49.6 ± 5.5			0.060		
Motile LIN (%)																			
5 min	HM	78.7 ± 10.7 <sup>***a</sup>	0.042	<0.001	76.8 ± 12.3 <sup>ab</sup>	0.284	0.097	74.2 ± 9.4 <sup>b</sup>	0.229	0.367	73.8 ± 8.1 <sup>b</sup>	0.442	0.818	76.1 ± 9.0 <sup>ab</sup>	0.233	0.115	0.020		
	LM	70.7 ± 15.1 <sup>***a</sup>		0.080	70.9 ± 12.0		0.230	74.2 ± 8.8		0.568	73.7 ± 10.3		0.235	70.1 ± 10.5		0.952	0.828		
30 min	HM	68.3 ± 9.6 <sup>***a</sup>	0.650		74.3 ± 9.8	0.489		76.7 ± 7.3	0.809		74.8 ± 4.8	0.716		72.5 ± 12.1	0.993		0.317		
	LM	64.8 ± 12.8			68.8 ± 9.1			73.7 ± 10.9			70.9 ± 11.4			71.1 ± 8.9			0.365		
Motile WOB (%)																			
5 min	HM	47.6 ± 12.2 <sup>***a</sup>	0.115	<0.001	43.1 ± 11.5 <sup>***ab</sup>	0.695	0.032	39.1 ± 11.4 <sup>b</sup>	0.079	0.299	38.3 ± 7.8 <sup>b</sup>	0.205	0.703	41.2 ± 10.1 <sup>b</sup>	0.630	0.218	0.001		
	LM	40.2 ± 13.0		0.201	39.7 ± 10.5		0.128	41.0 ± 8.9		0.389	40.1 ± 8.5		0.328	37.6 ± 10.1		0.504	0.613		
30 min	HM	35.5 ± 7.3 <sup>***a</sup>	0.606		38.1 ± 9.0 <sup>***a</sup>	0.687		40.1 ± 7.6	0.819		37.8 ± 5.2	0.422		36.8 ± 9.1	0.478		0.765		
	LM	34.4 ± 9.1			36.5 ± 7.9			39.5 ± 9.7			37.1 ± 8.5			36.8 ± 7.3			0.929		
Motile ALH (μm)																			
5 min	HM	2.6 ± 0.8 <sup>***a</sup>	0.655	0.003	3.0 ± 0.8 <sup>***a</sup>	0.367	0.006	3.8 ± 1.0 <sup>***b</sup>	0.001	0.780	3.7 ± 0.6 <sup>***b</sup>	0.030	0.727	3.6 ± 0.8 <sup>b</sup>	0.092	0.550	<0.001		
	LM	2.4 ± 0.5 <sup>***a</sup>		0.313	2.8 ± 0.6 <sup>***b</sup>		0.447	3.0 ± 0.6 <sup>***b</sup>		0.622	3.2 ± 0.8 <sup>***b</sup>		0.734	3.2 ± 0.8 <sup>b</sup>		0.551	<0.001		
30 min	HM	3.2 ± 0.7 <sup>***a</sup>	<0.001		3.6 ± 0.9 <sup>***a</sup>	<0.001		3.7 ± 0.7 <sup>***a</sup>	0.001		3.7 ± 0.7 <sup>***a</sup>	0.020		3.7 ± 0.9	0.105		0.148		
	LM	2.5 ± 0.5 <sup>***a</sup>			2.9 ± 0.5 <sup>***b</sup>			3.0 ± 0.6 <sup>***b</sup>			3.3 ± 0.6 <sup>***b</sup>			3.3 ± 0.8 <sup>b</sup>			<0.001		
Motile BCF (Hz)																			
5 min	HM	23.2 ± 4.4 <sup>***a</sup>	0.206	<0.001	23.2 ± 4.5 <sup>***a</sup>	0.060	0.015	21.3 ± 4.3	0.728	0.230	20.7 ± 3.8	0.951	0.268	21.9 ± 3.6 <sup>***a</sup>	0.121	0.024	0.128		
	LM	21.6 ± 4.3 <sup>***a</sup>		0.004	20.9 ± 3.7		0.233	20.9 ± 2.9		0.298	20.7 ± 3.2		0.071	20.3 ± 3.5		0.502	0.758		
30 min	HM	18.9 ± 2.8 <sup>***a</sup>	0.382		20.4 ± 3.0 <sup>***a</sup>	0.464		20.0 ± 2.8	0.981		19.7 ± 2.7	0.392		19.7 ± 2.8 <sup>***a</sup>	0.927		0.398		
	LM	18.0 ± 4.0 <sup>***a</sup>			19.8 ± 3.0			20.0 ± 2.8			19.0 ± 3.1			19.6 ± 2.9			0.179		

Supplementary Table S2. Continued...

NPVCL (μm/s)																			
5 min	HM	60.9 ± 7.7 <sup>**</sup>	0.007	0.250	59.4 ± 10.4	0.372	0.706	60.0 ± 9.9	0.108	0.757	64.6 ± 13.5	0.138	0.447	59.1 ± 10.0	0.832	0.911	0.350		
	LM	55.3 ± 10.1 <sup>**</sup>		0.111	58.5 ± 11.9		0.254	56.0 ± 7.5 <sup>**</sup>		0.006	59.6 ± 9.4		0.415	59.5 ± 10.4		0.358	0.433		
30 min	HM	58.4 ± 7.4	0.631		58.3 ± 10.9	0.289		61.6 ± 7.7	0.472		62.2 ± 7.7	0.685		58.8 ± 8.1	0.276		0.311		
	LM	57.6 ± 8.0			61.4 ± 9.5			62.1 ± 7.4 <sup>**</sup>			61.4 ± 4.9			61.2 ± 6.6			0.244		
NPVAP (μm/s)																			
5 min	HM	33.9 ± 6.1 <sup>**</sup>	0.001	0.076	32.9 ± 7.4 <sup>**</sup>	0.190	0.008	30.2 ± 7.1	0.885	0.389	29.7 ± 6.0	0.069	0.780	32.7 ± 9.1	0.428	0.179	0.185		
	LM	28.7 ± 5.2 <sup>**</sup>		0.059	30.4 ± 10.0		0.968	30.2 ± 5.6		0.920	33.9 ± 7.4		0.502	30.9 ± 6.3		0.258	0.166		
30 min	HM	31.2 ± 6.8	0.675		27.2 ± 7.1 <sup>**</sup>	0.188		32.0 ± 7.0	0.472		29.5 ± 5.9	0.100		29.4 ± 7.3	0.741		0.138		
	LM	29.2 ± 6.9			29.9 ± 6.8			30.1 ± 5.0			32.4 ± 5.9			28.7 ± 6.9			0.326		
NPVSL (μm/s)																			
5 min	HM	24.7 ± 8.1 <sup>***</sup>	<0.001	0.014	22.9 ± 9.4 <sup>*</sup>	0.367	0.035	21.1 ± 8.1	0.898	0.805	18.1 ± 7.4 <sup>**</sup>	0.005	0.745	22.9 ± 11.8	0.299	0.123	0.122		
	LM	17.1 ± 5.0 <sup>***</sup>		0.767	20.1 ± 9.2 <sup>ab</sup>		0.905	20.8 ± 7.2 <sup>ab</sup>		0.749	24.4 ± 7.6 <sup>***</sup>		0.042	19.8 ± 8.2 <sup>ab</sup>		0.225	0.030		
30 min	HM	19.6 ± 8.9 <sup>*</sup>	0.675		18.0 ± 6.4 <sup>*</sup>	0.485		21.4 ± 7.8	0.928		18.7 ± 4.6	0.645		18.2 ± 8.4	0.647		0.492		
	LM	17.4 ± 6.1			19.3 ± 6.9			20.2 ± 5.9			19.6 ± 8.0 <sup>*</sup>			17.1 ± 6.9			0.401		
NPSTR (%)																			
5 min	HM	68.4 ± 14.0 <sup>*</sup>	0.015	0.038	66.8 ± 17.5	0.186	0.406	65.3 ± 13.8	0.849	0.558	56.8 ± 18.1 <sup>*</sup>	0.016	0.292	65.1 ± 21.3	0.382	0.186	0.152		
	LM	57.4 ± 15.7 <sup>*</sup>		0.733	61.2 ± 11.3		0.650	64.5 ± 16.4		0.728	67.7 ± 11.8 <sup>**</sup>		0.021	60.3 ± 16.4		0.413	0.140		
30 min	HM	59.4 ± 15.6 <sup>*</sup>	0.413		63.0 ± 14.2	0.392		63.0 ± 12.7	0.999		61.1 ± 8.0	0.420		57.6 ± 16.8	0.805		0.588		
	LM	55.9 ± 14.1			59.6 ± 13.4			63.0 ± 12.0			58.3 ± 15.0 <sup>*</sup>			56.4 ± 16.4			0.411		
NPLIN (%)																			
5 min	HM	41.3 ± 14.4 <sup>*</sup>	0.013	0.015	39.1 ± 15.2 <sup>*</sup>	0.421	0.048	35.2 ± 13.3	0.473	0.665	29.7 ± 13.8 <sup>**</sup>	0.002	0.857	39.7 ± 20.4	0.265	0.081	0.073		
	LM	31.7 ± 10.3 <sup>*</sup>		0.640	35.1 ± 15.0		0.749	38.1 ± 14.7		0.172	41.4 ± 10.9 <sup>**</sup>		0.018	34.0 ± 14.4		0.185	0.116		
30 min	HM	33.3 ± 17.0 <sup>*</sup>	0.984		31.3 ± 11.6 <sup>*</sup>	0.844		34.4 ± 12.9	1		30.3 ± 5.8	0.462		30.9 ± 15.0	0.358		0.794		
	LM	30.3 ± 10.6			31.9 ± 10.9			33.0 ± 11.3			32.5 ± 13.5 <sup>*</sup>			28.9 ± 11.9			0.734		
NPWOB (%)																			
5 min	HM	56.3 ± 10.5 <sup>+</sup>	0.221	0.028	56.1 ± 10.5 <sup>**ab</sup>	0.134	0.003	50.6 ± 10.8 <sup>d</sup>	0.181	0.621	47.6 ± 11.6 <sup>**ab</sup>	0.001	0.842	55.9 ± 14.3 <sup>b</sup>	0.375	0.124	0.023		
	LM	52.7 ± 9.5		0.742	51.7 ± 9.8		0.378	54.6 ± 9.9		0.055	57.2 ± 7.2 <sup>**</sup>		0.052	52.6 ± 10.8		0.129	0.287		
30 min	HM	52.7 ± 12.9 <sup>*</sup>	0.617		46.8 ± 10.3 <sup>**</sup>	0.372		52.2 ± 9.8	0.617		47.9 ± 6.6	0.104		50.1 ± 10.9	0.407		0.193		
	LM	50.6 ± 10.6			49.3 ± 9.0			49.1 ± 9.6			53.1 ± 9.9			47.4 ± 11.3			0.422		
MP VCL (μm/s)																			
5 min	HM	109.5 ± 22.9 <sup>***</sup>	0.873	<0.001	123.5 ± 35.1 <sup>d</sup>	0.603	0.081	149.2 ± 37.4 <sup>***</sup>	0.002	0.345	148.4 ± 28.6 <sup>b</sup>	0.105	0.443	145.1 ± 26.5 <sup>b</sup>	0.863	0.806	<0.001		
	LM	108.2 ± 18.3 <sup>d</sup>		0.288	116.2 ± 23.5 <sup>d</sup>		0.203	121.2 ± 22.3 <sup>**ab</sup>		0.740	134.7 ± 30.3 <sup>bc</sup>		0.672	143.6 ± 30.6 <sup>c</sup>		0.343	<0.001		
30 min	HM	130.4 ± 19.9 <sup>****</sup>	0.007		139.9 ± 29.7 <sup>*</sup>	0.043		139.5 ± 34.6 <sup>*</sup>	0.018		143.8 ± 31.4	0.124		143.1 ± 30.8	0.368		0.541		
	LM	114.0 ± 17.7 <sup>**</sup>			124.0 ± 18.8 <sup>ab</sup>			119.0 ± 23.5 <sup>ab</sup>			131.0 ± 23.1 <sup>ab</sup>			135.1 ± 30.3 <sup>b</sup>			0.022		
MP VAP (μm/s)																			
5 min	HM	58.7 ± 8.3 <sup>*</sup>	0.028	0.881	60.0 ± 9.7	0.245	0.751	63.1 ± 7.4 <sup>**</sup>	0.003	0.916	64.3 ± 9.3	0.337	0.290	64.0 ± 7.0	0.199	0.161	0.068		
	LM	54.1 ± 5.8 <sup>+</sup>		0.427	57.2 ± 6.7 <sup>ab</sup>		0.710	57.2 ± 5.7 <sup>**ab</sup>		0.923	60.7 ± 9.4 <sup>d</sup>		0.074	61.0 ± 8.9 <sup>b</sup>		0.363	0.013		
30 min	HM	59.1 ± 7.4 <sup>**</sup>	0.005		60.8 ± 8.3 <sup>*</sup>	0.048		62.9 ± 8.5 <sup>**</sup>	0.005		61.0 ± 6.8 <sup>*</sup>	0.016		60.8 ± 9.0	0.414		0.603		
	LM	52.4 ± 7.5 <sup>**</sup>			56.5 ± 5.0 <sup>ab</sup>			57.1 ± 4.7 <sup>**ab</sup>			56.3 ± 7.4 <sup>ab</sup>			58.8 ± 8.1 <sup>b</sup>			0.041		

Supplementary Table S2. Continued...

MP VSL ( $\mu\text{m/s}$ )																	
5 min	HM	45.3 $\pm$ 9.7 <sup>**</sup>	0.131	0.002	44.8 $\pm$ 11.1	0.162	0.248	41.0 $\pm$ 6.8	0.814	0.178	40.9 $\pm$ 10.0	0.999	0.662	41.4 $\pm$ 9.9	0.223	0.450	0.280
	LM	40.8 $\pm$ 10.7		0.209	39.6 $\pm$ 10.5		0.636	41.5 $\pm$ 7.9		0.899	40.9 $\pm$ 7.9		0.129	38.1 $\pm$ 8.5		0.567	0.737
30 min	HM	37.2 $\pm$ 7.1 <sup>**a</sup>	1		40.6 $\pm$ 8.5 <sup>ab</sup>	0.323		44.6 $\pm$ 10.3 <sup>b</sup>	0.961		40.4 $\pm$ 4.8 <sup>ab</sup>	0.114		39.5 $\pm$ 8.0 <sup>ab</sup>	0.962		0.030
	LM	37.2 $\pm$ 7.1			38.3 $\pm$ 6.7			41.8 $\pm$ 7.3			36.3 $\pm$ 9.3			39.6 $\pm$ 9.0			0.189
MP STR (%)																	
5 min	HM	57.2 $\pm$ 11.2 <sup>***a</sup>	0.582	<0.001	54.1 $\pm$ 11.7 <sup>**a</sup>	0.174	0.037	46.8 $\pm$ 9.8 <sup>b</sup>	0.083	0.073	47.1 $\pm$ 9.5 <sup>b</sup>	0.315	0.300	48.7 $\pm$ 9.3 <sup>b</sup>	0.651	0.999	<0.001
	LM	53.1 $\pm$ 11.7		0.31	52.7 $\pm$ 9.1		0.702	51.6 $\pm$ 8.3		0.563	48.6 $\pm$ 9.8		0.404	45.9 $\pm$ 7.6		0.175	0.074
30 min	HM	47.9 $\pm$ 6.4 <sup>***</sup>	0.092		47.2 $\pm$ 9.1 <sup>*</sup>	0.914		50.1 $\pm$ 13.1	0.490		45.8 $\pm$ 6.5	0.414		45.3 $\pm$ 6.5	0.335		0.317
	LM	48.1 $\pm$ 7.5			48.3 $\pm$ 7.3			51.5 $\pm$ 8.4			46.2 $\pm$ 7.5			47.3 $\pm$ 10.3			0.182
MP LIN (%)																	
5 min	HM	77.7 $\pm$ 13.2 <sup>***a</sup>	0.309	<0.001	75.9 $\pm$ 15.5 <sup>**a</sup>	0.349	0.018	65.5 $\pm$ 12.3 <sup>**b</sup>	0.032	0.160	64.4 $\pm$ 12.0 <sup>b</sup>	0.357	0.410	65.2 $\pm$ 15.5 <sup>b</sup>	0.459	0.389	<0.001
	LM	75.4 $\pm$ 15.6 <sup>d</sup>		0.112	69.5 $\pm$ 17.0 <sup>ab</sup>		0.202	71.5 $\pm$ 11.4 <sup>**ab</sup>		0.853	68.2 $\pm$ 14.4 <sup>ab</sup>		0.599	63.3 $\pm$ 14.1 <sup>b</sup>		0.328	0.046
30 min	HM	64.6 $\pm$ 12.0 <sup>***</sup>	0.278		67.4 $\pm$ 12.1 <sup>*</sup>	0.794		71.0 $\pm$ 12.0	0.211		67.7 $\pm$ 9.8	0.837		65.2 $\pm$ 11.7	0.328		0.268
	LM	71.0 $\pm$ 12.4			67.8 $\pm$ 10.6			73.5 $\pm$ 13.3			64.5 $\pm$ 16.3			68.5 $\pm$ 11.8			0.170
MP WOB (%)																	
5 min	HM	47.1 $\pm$ 15.1 <sup>***a</sup>	0.218	<0.001	43.7 $\pm$ 16.4 <sup>**ab</sup>	0.656	0.026	33.2 $\pm$ 13.0 <sup>b</sup>	0.064	0.357	32.3 $\pm$ 12.7 <sup>b</sup>	0.367	0.600	34.1 $\pm$ 14.0 <sup>b</sup>	0.388	0.135	0.001
	LM	42.5 $\pm$ 15.9 <sup>d</sup>		0.100	39.5 $\pm$ 14.4 <sup>d</sup>		0.092	39.4 $\pm$ 11.4 <sup>d</sup>		0.957	35.4 $\pm$ 12.8 <sup>d</sup>		0.477	31.3 $\pm$ 12.0 <sup>ab</sup>		0.734	0.046
30 min	HM	32.7 $\pm$ 9.5 <sup>***</sup>	0.923		33.8 $\pm$ 11.8 <sup>*</sup>	0.664		38.1 $\pm$ 16.8	0.184		32.4 $\pm$ 8.2	0.889		31.2 $\pm$ 9.3	0.734		0.323
	LM	35.9 $\pm$ 9.7			34.7 $\pm$ 9.6			40.0 $\pm$ 12.2			31.9 $\pm$ 11.3			34.6 $\pm$ 13.0			0.251
MP ALH ( $\mu\text{m}$ )																	
5 min	HM	2.9 $\pm$ 1.0 <sup>***a</sup>	0.804	<0.001	3.3 $\pm$ 1.3 <sup>**a</sup>	0.774	0.040	4.3 $\pm$ 1.4 <sup>***b</sup>	0.009	0.517	4.3 $\pm$ 1.0 <sup>b</sup>	0.172	0.600	4.2 $\pm$ 1.0 <sup>b</sup>	0.872	0.744	<0.001
	LM	3.0 $\pm$ 0.9 <sup>d</sup>		0.064	3.2 $\pm$ 1.0 <sup>ab</sup>		0.139	3.4 $\pm$ 0.9 <sup>**ab</sup>		0.953	3.9 $\pm$ 1.1 <sup>ab</sup>		0.773	4.2 $\pm$ 1.0 <sup>b</sup>		0.323	<0.001
30 min	HM	3.9 $\pm$ 0.8 <sup>***</sup>	0.032		4.0 $\pm$ 1.1 <sup>*</sup>	0.160		4.1 $\pm$ 1.4	0.069		4.3 $\pm$ 1.0	0.327		4.3 $\pm$ 1.1	0.251		0.746
	LM	3.4 $\pm$ 0.7 <sup>*</sup>			3.6 $\pm$ 0.7			3.4 $\pm$ 0.9			4.0 $\pm$ 0.9			3.9 $\pm$ 1.1			0.131
MP BCF (Hz)																	
5 min	HM	22.7 $\pm$ 4.1 <sup>***a</sup>	0.716	<0.001	23.2 $\pm$ 5.6 <sup>**a</sup>	0.123	0.003	19.3 $\pm$ 4.8 <sup>b</sup>	0.406	0.930	18.9 $\pm$ 3.8 <sup>b</sup>	0.540	0.319	19.8 $\pm$ 4.0 <sup>b</sup>	0.118	0.142	0.001
	LM	22.2 $\pm$ 4.7 <sup>**a</sup>		0.007	21.0 $\pm$ 4.3 <sup>ab</sup>		0.147	20.3 $\pm$ 3.6 <sup>ab</sup>		0.524	19.6 $\pm$ 4.6 <sup>ab</sup>		0.066	18.1 $\pm$ 3.2 <sup>b</sup>		1	0.015
30 min	HM	18.1 $\pm$ 3.1 <sup>***</sup>	0.925		18.9 $\pm$ 4.1 <sup>*</sup>	0.911		19.2 $\pm$ 5.1	0.282		18.0 $\pm$ 2.3	0.427		18.0 $\pm$ 4.4	1		0.725
	LM	18.5 $\pm$ 3.8 <sup>**</sup>			19.1 $\pm$ 4.3			19.7 $\pm$ 3.8			17.2 $\pm$ 4.3			18.6 $\pm$ 4.0			0.304
RP VCL ( $\mu\text{m/s}$ )																	
5 min	HM	125.9 $\pm$ 17.7 <sup>**a</sup>	0.576	0.001	137.5 $\pm$ 16.2 <sup>***b</sup>	0.718	0.006	151.7 $\pm$ 19.4 <sup>***bc</sup>	<0.001	0.399	151.7 $\pm$ 23.5 <sup>d</sup>	0.353	0.778	150.2 $\pm$ 22.7 <sup>d</sup>	0.089	0.401	<0.001
	LM	129.0 $\pm$ 17.3 <sup>d</sup>		0.339	135.3 $\pm$ 20.6 <sup>ab</sup>		0.729	132.3 $\pm$ 15.2 <sup>***a</sup>		0.163	146.2 $\pm$ 16.0 <sup>b</sup>		0.093	139.4 $\pm$ 20.7 <sup>ab</sup>		0.261	0.024
30 min	HM	144.1 $\pm$ 18.7 <sup>***</sup>	<0.001		151.6 $\pm$ 17.6 <sup>***</sup>	<0.001		146.6 $\pm$ 20.1	0.251		150.0 $\pm$ 21.3	0.068		155.6 $\pm$ 19.9	0.262		0.320
	LM	122.9 $\pm$ 11.2 <sup>***a</sup>			133.3 $\pm$ 18.0 <sup>***ab</sup>			139.7 $\pm$ 20.9 <sup>b</sup>			140.2 $\pm$ 23.3 <sup>b</sup>			146.1 $\pm$ 18.7 <sup>b</sup>			0.005
RP VAP ( $\mu\text{m/s}$ )																	
5 min	HM	73.3 $\pm$ 9.9	0.243	0.600	74.4 $\pm$ 10.6	0.270	0.580	76.3 $\pm$ 9.3 <sup>**</sup>	0.004	0.877	77.7 $\pm$ 11.2	0.201	0.884	76.8 $\pm$ 9.6	0.702	0.459	0.532
	LM	69.0 $\pm$ 13.5		0.178	71.1 $\pm$ 9.4		0.329	69.4 $\pm$ 6.5 <sup>**</sup>		0.204	73.2 $\pm$ 6.5		0.258	75.6 $\pm$ 12.6		0.537	0.275
30 min	HM	74.8 $\pm$ 9.2 <sup>***</sup>	<0.001		75.9 $\pm$ 8.5 <sup>***</sup>	0.010		75.6 $\pm$ 8.7	0.161		76.2 $\pm$ 10.0 <sup>*</sup>	0.017		78.9 $\pm$ 9.7	0.064		0.616
	LM	63.7 $\pm$ 8.7 <sup>***a</sup>			70.0 $\pm$ 6.4 <sup>***b</sup>			72.3 $\pm$ 7.1 <sup>b</sup>			70.0 $\pm$ 7.0 <sup>b</sup>			73.6 $\pm$ 9.3 <sup>b</sup>			0.002



Supplementary Table S2. Continued...

RP VSL ( $\mu\text{m/s}$ )																	
5 min	HM	67.8 $\pm$ 9.8	0.058	0.921	68.4 $\pm$ 10.5	0.141	0.765	68.4 $\pm$ 9.9	0.073	0.467	70.1 $\pm$ 11.5	0.183	0.969	69.0 $\pm$ 9.6	0.909	0.545	0.945
	LM	61.2 $\pm$ 12.0		0.277	64.1 $\pm$ 9.2		0.682	62.8 $\pm$ 7.4		0.207	65.7 $\pm$ 6.2		0.398	68.7 $\pm$ 13.0		0.369	0.301
30 min	HM	<b>67.5 <math>\pm</math> 8.6<sup>***</sup></b>	<b>0.001</b>		<b>67.6 <math>\pm</math> 8.3<sup>*</sup></b>	<b>0.049</b>		68.0 $\pm$ 8.2	0.265		<b>68.7 <math>\pm</math> 9.8<sup>*</sup></b>	0.025		70.7 $\pm$ 9.3	0.065		0.715
	LM	<b>57.1 <math>\pm</math> 9.7<sup>***a</sup></b>			<b>63.1 <math>\pm</math> 6.5<sup>b</sup></b>			65.5 $\pm$ 7.0 <sup>b</sup>			<b>63.1 <math>\pm</math> 6.2<sup>*</sup></b>	<sup>b</sup>		65.7 $\pm$ 8.5 <sup>b</sup>			<b>0.006</b>
RP STR (%)																	
5 min	HM	92.2 $\pm$ 3.3 <sup>a</sup>	0.102	<b>0.012</b>	91.0 $\pm$ 2.5 <sup>***ab</sup>	0.154	<b>0.001</b>	89.1 $\pm$ 3.1 <sup>b</sup>	0.292	0.444	90.0 $\pm$ 2.5 <sup>b</sup>	0.628	0.961	89.5 $\pm$ 2.4 <sup>b</sup>	0.349	0.736	<b>0.001</b>
	LM	90.3 $\pm$ 4.0		0.356	89.7 $\pm$ 3.0		0.910	90.1 $\pm$ 3.1		0.84	89.5 $\pm$ 2.4		0.869	90.3 $\pm$ 3.2		0.130	0.889
30 min	HM	<b>90.0 <math>\pm</math> 2.2<sup>*</sup></b>	0.371		<b>88.7 <math>\pm</math> 2.1<sup>***</sup></b>	0.154		89.7 $\pm$ 2.0	0.436		89.8 $\pm$ 1.9	0.620		89.3 $\pm$ 2.2	0.748		0.282
	LM	89.0 $\pm$ 3.8			89.9 $\pm$ 3.3			90.2 $\pm$ 2.8			89.5 $\pm$ 2.3			89.1 $\pm$ 1.6			0.604
RP LIN (%)																	
5 min	HM	<b>55.2 <math>\pm</math> 8.9<sup>a</sup></b>	0.071	<b>0.011</b>	<b>50.8 <math>\pm</math> 7.1<sup>***ab</sup></b>	0.352	<b>0.005</b>	46.8 $\pm$ 8.4 <sup>b</sup>	0.190	0.377	48.1 $\pm$ 7.6 <sup>b</sup>	0.477	0.930	48.4 $\pm$ 7.4 <sup>b</sup>	0.411	0.343	<b>0.003</b>
	LM	49.7 $\pm$ 11.0		0.358	48.9 $\pm$ 7.3		0.897	49.0 $\pm$ 9.0		0.804	46.3 $\pm$ 5.6		0.423	<b>50.2 <math>\pm</math> 7.9<sup>*</sup></b>		<b>0.032</b>	0.474
30 min	HM	<b>48.2 <math>\pm</math> 6.4<sup>*</sup></b>	0.521		<b>45.7 <math>\pm</math> 4.9<sup>***</sup></b>	0.098		47.5 $\pm$ 5.1	0.597		47.1 $\pm$ 4.4	0.975		46.6 $\pm$ 5.3	0.640		0.555
	LM	46.8 $\pm$ 6.9			48.6 $\pm$ 6.7			48.5 $\pm$ 7.1			46.7 $\pm$ 6.5			<b>45.9 <math>\pm</math> 4.6<sup>*</sup></b>			0.566
RP WOB (%)																	
5 min	HM	<b>59.4 <math>\pm</math> 7.6<sup>***a</sup></b>	0.053	<b>0.010</b>	<b>55.4 <math>\pm</math> 6.6<sup>***ab</sup></b>	0.471	<b>0.013</b>	51.9 $\pm$ 7.5 <sup>b</sup>	0.204	0.304	53.1 $\pm$ 7.1 <sup>b</sup>	0.346	0.954	53.6 $\pm$ 6.9 <sup>b</sup>	0.435	0.330	<b>0.004</b>
	LM	54.4 $\pm$ 9.7		0.421	54.0 $\pm$ 6.7		0.875	53.9 $\pm$ 8.4		0.796	51.3 $\pm$ 5.1		0.350	<b>55.2 <math>\pm</math> 7.1<sup>*</sup></b>		<b>0.031</b>	0.476
30 min	HM	<b>53.2 <math>\pm</math> 6.0<sup>***</sup></b>	0.597		<b>51.3 <math>\pm</math> 4.5<sup>*</sup></b>	0.122		52.6 $\pm$ 4.7	0.650		52.2 $\pm$ 4.1	0.877		51.9 $\pm$ 5.0	0.643		0.732
	LM	52.2 $\pm$ 5.7			53.7 $\pm$ 6.0			53.4 $\pm$ 6.2			51.9 $\pm$ 6.4			<b>51.2 <math>\pm</math> 4.5<sup>*</sup></b>			0.589
RP ALH ( $\mu\text{m}$ )																	
5 min	HM	<b>3.0 <math>\pm</math> 0.7<sup>***a</sup></b>	0.416	<b>&lt;0.001</b>	<b>3.4 <math>\pm</math> 0.7<sup>***b</sup></b>	0.734	<b>&lt;0.001</b>	3.9 $\pm$ 0.9 <sup>ab</sup>	<b>0.014</b>	0.981	3.9 $\pm$ 0.7 <sup>b</sup>	0.817	0.712	3.8 $\pm$ 0.8 <sup>ab</sup>	0.078	<b>0.021</b>	<b>&lt;0.001</b>
	LM	3.2 $\pm$ 0.8 <sup>b</sup>		0.133	3.6 $\pm$ 0.9 <sup>ab</sup>		0.847	<b>3.4 <math>\pm</math> 0.6<sup>***ab</sup></b>		0.144	3.9 $\pm$ 0.8 <sup>b</sup>		0.645	<b>3.4 <math>\pm</math> 0.6<sup>***b</sup></b>		<b>0.005</b>	<b>0.031</b>
30 min	HM	<b>3.9 <math>\pm</math> 0.8<sup>***</sup></b>	0.018		<b>4.1 <math>\pm</math> 0.7<sup>***</sup></b>	0.007		3.9 $\pm$ 0.7	0.253		4.0 $\pm$ 0.6	0.060		<b>4.2 <math>\pm</math> 0.6<sup>***</sup></b>	0.005		0.311
	LM	<b>3.4 <math>\pm</math> 0.4<sup>*</sup></b>			<b>3.5 <math>\pm</math> 0.8<sup>***</sup></b>			3.7 $\pm$ 0.8			3.8 $\pm$ 0.9			<b>3.9 <math>\pm</math> 0.7<sup>***</sup></b>			0.152
RP BCF (Hz)																	
5 min	HM	<b>26.0 <math>\pm</math> 3.4<sup>***</sup></b>	0.500	<b>&lt;0.001</b>	24.7 $\pm$ 4.7	0.307	0.055	23.5 $\pm$ 4.6	0.911	0.235	23.3 $\pm$ 4.1	0.327	0.265	<b>24.2 <math>\pm</math> 3.8<sup>***</sup></b>	0.610	<b>0.009</b>	0.153
	LM	<b>25.1 <math>\pm</math> 5.5<sup>*</sup></b>		<b>0.039</b>	23.4 $\pm$ 4.6		1	23.3 $\pm$ 3.4		0.161	23.4 $\pm$ 3.3		0.116	<b>24.8 <math>\pm</math> 4.6<sup>*</sup></b>		<b>0.046</b>	0.486
30 min	HM	<b>21.8 <math>\pm</math> 4.3<sup>***</sup></b>	0.950		22.6 $\pm$ 2.9	0.453		22.1 $\pm$ 2.9	0.756		21.9 $\pm$ 3.7	0.882		<b>21.5 <math>\pm</math> 3.1<sup>***</sup></b>	0.406		0.855
	LM	<b>21.7 <math>\pm</math> 3.5<sup>*</sup></b>			23.4 $\pm$ 4.3			21.8 $\pm$ 3.9			21.8 $\pm$ 2.7			<b>22.3 <math>\pm</math> 3.4<sup>*</sup></b>			0.531

ALH, average path velocity; BCF, beat cross frequency; CI, confidence interval; CAP, capacitating-HTF; DOPA; dopamine; HTF, human tubal fluid; HM, high motile subpopulation; LIN, linearity; LM, low motile subpopulation; MP, medium-progressive; min, minutes; NP, non-progressive; Prog, progressive; RP, rapid-progressive; SD, standard deviation; SP *p*, t-test between subpopulations; STR, straightness; TP *p*, t test between time points; VAP, average path velocity; VCL, curvilinear velocity; VSL, straight-line velocity; WOB, wobble. Values labelled in bold with an asterisks in the same column were significantly different between the HM and LM subpopulations for individual media and SCA parameters (\**p* < 0.05, \*\**p* < 0.01 and \*\*\**p* < 0.001). Values labelled in bold and red with an asterisks in the same column were significantly different between the 5 and 30 minutes for individual subpopulations and media (\**p* < 0.05 and \*\**p* < 0.01). Student's t-test was used or the Mann-Whitney test when normal distribution was absent. <sup>a, b, c, d</sup> Values labelled with different superscript letters in the same row were significantly different between the various media for individual subpopulations and SCA parameters. One-way ANOVA was used for parametric distributions or Kruskal-Wallis test for non-parametric distributions.

**Supplementary Table S3.** Comparison of mean SCA motility and kinematic parameters at 5, 30 and 60 minutes for both the low motile (LM) and high motile (HM) sperm subpopulations after treatment with HTF, CAP, 50 ng/mL, 100 ng/mL, 250 ng/mL and 500 ng/mL prolactin (mean  $\pm$  SD) (n = 20).

		HTF				CAP				50 ng/mL PRL				100 ng/mL PRL				250 ng/mL PRL				500 ng/mL PRL				ANOVA
		Mean $\pm$ SD	SP p	TP p		Mean $\pm$ SD	SP p	TP p		Mean $\pm$ SD	SP p	TP p		Mean $\pm$ SD	SP p	TP p		Mean $\pm$ SD	SP p	TP p		Mean $\pm$ SD	SP p	TP p		
Prog (%)																										
5 min	HM	33.3 $\pm$ 21.1 <sup>***</sup>	<0.001	0.184		42.2 $\pm$ 21.5 <sup>***</sup>	<0.001	0.515		39.5 $\pm$ 20.3 <sup>**</sup>	0.002	0.625		36.9 $\pm$ 19.7 <sup>*</sup>	0.011	0.710		38.2 $\pm$ 19.1 <sup>**</sup>	0.001	0.801		36.3 $\pm$ 21.4 <sup>***</sup>	<0.001	0.524		0.757
	LM	10.0 $\pm$ 9.8 <sup>***a</sup>		0.542		15.0 $\pm$ 11.8 <sup>***ab</sup>		0.641		22.7 $\pm$ 14.1 <sup>***b</sup>		0.779		23.4 $\pm$ 15.3 <sup>b</sup>		0.435		20.9 $\pm$ 15.4 <sup>***b</sup>		0.752		17.9 $\pm$ 13.6 <sup>***ab</sup>		0.711		0.005
30 min	HM	27.7 $\pm$ 19.5 <sup>***</sup>	<0.001			37.0 $\pm$ 22.2 <sup>**</sup>	0.008			37.5 $\pm$ 19.1 <sup>**</sup>	0.003			32.6 $\pm$ 19.3	0.241			34.6 $\pm$ 20.6	0.054			34.5 $\pm$ 23.2 <sup>**</sup>	0.002			0.636
	LM	9.4 $\pm$ 9.7 <sup>***a</sup>				19.0 $\pm$ 17.4 <sup>**ab</sup>				21.5 $\pm$ 19.5 <sup>**ab</sup>				25.9 $\pm$ 19.9 <sup>b</sup>				23.3 $\pm$ 20.4 <sup>b</sup>				16.3 $\pm$ 13.9 <sup>**ab</sup>				0.024
60 min	HM	22.1 $\pm$ 17.7 <sup>**</sup>	0.002			34.8 $\pm$ 21.7 <sup>**</sup>	0.004			34.0 $\pm$ 15.0 <sup>**</sup>	0.006			33.3 $\pm$ 17.0 <sup>**</sup>	0.009			35.9 $\pm$ 15.6 <sup>**</sup>	0.003			29.1 $\pm$ 18.0 <sup>*</sup>	0.011			0.155
	LM	7.0 $\pm$ 8.2 <sup>***a</sup>				16.8 $\pm$ 13.1 <sup>***ab</sup>				19.2 $\pm$ 13.2 <sup>***ab</sup>				19.2 $\pm$ 14.6 <sup>***b</sup>				19.3 $\pm$ 16.6 <sup>**ab</sup>				14.4 $\pm$ 14.7 <sup>ab</sup>				0.044
Motile (%)																										
5 min	HM	61.5 $\pm$ 23.5 <sup>***</sup>	<0.001	0.128		68.7 $\pm$ 22.0 <sup>***</sup>	<0.001	0.952		67.4 $\pm$ 21.1 <sup>***</sup>	<0.001	0.842		65.9 $\pm$ 22.4 <sup>**</sup>	0.001	0.998		68.7 $\pm$ 21.6 <sup>***</sup>	<0.001	0.613		65.2 $\pm$ 22.2 <sup>***</sup>	<0.001	0.655		0.873
	LM	28.8 $\pm$ 19.5 <sup>***</sup>		0.364		39.1 $\pm$ 19.8 <sup>***</sup>		0.822		42.7 $\pm$ 19.4 <sup>***</sup>		0.738		44.5 $\pm$ 20.6 <sup>**</sup>		0.370		40.8 $\pm$ 20.2 <sup>***</sup>		0.783		36.2 $\pm$ 15.7 <sup>***</sup>		0.541		0.077
30 min	HM	56.0 $\pm$ 23.7 <sup>***</sup>	<0.001			67.1 $\pm$ 21.9 <sup>***</sup>	<0.001			66.0 $\pm$ 22.4 <sup>***</sup>	<0.001			66.3 $\pm$ 20.9 <sup>***</sup>	<0.001			63.0 $\pm$ 24.6 <sup>**</sup>	0.002			66.8 $\pm$ 23.8 <sup>***</sup>	<0.001			0.544
	LM	26.2 $\pm$ 18.8 <sup>***</sup>				38.1 $\pm$ 20.8 <sup>***</sup>				38.3 $\pm$ 21.1 <sup>***</sup>				43.3 $\pm$ 21.5 <sup>***</sup>				40.9 $\pm$ 20.5 <sup>***</sup>				38.1 $\pm$ 15.6 <sup>***</sup>				0.072
60 min	HM	47.2 $\pm$ 20.1 <sup>***a</sup>	<0.001			66.9 $\pm$ 20.3 <sup>***b</sup>	<0.001			63.8 $\pm$ 16.6 <sup>***b</sup>	<0.001			66.3 $\pm$ 18.9 <sup>***b</sup>	<0.001			63.2 $\pm$ 19.4 <sup>***b</sup>	<0.001			59.2 $\pm$ 20.7 <sup>***ab</sup>	<0.001			0.024
	LM	20.7 $\pm$ 17.3 <sup>***a</sup>				35.4 $\pm$ 18.6 <sup>***b</sup>				40.0 $\pm$ 16.7 <sup>***b</sup>				36.5 $\pm$ 15.2 <sup>***b</sup>				37.2 $\pm$ 16.3 <sup>***b</sup>				32.8 $\pm$ 15.2 <sup>***b</sup>				0.010
RP (%)																										
5 min	HM	9.8 $\pm$ 10.4 <sup>**</sup>	0.004	0.626		11.5 $\pm$ 14.8	0.133	0.999		11.8 $\pm$ 12.3 <sup>*</sup>	0.033	0.962		9.3 $\pm$ 11.2	0.144	0.911		11.1 $\pm$ 11.6 <sup>*</sup>	0.027	0.870		10.3 $\pm$ 12.8	0.169	0.869		0.979
	LM	2.2 $\pm$ 3.7 <sup>**</sup>		0.994		4.3 $\pm$ 6.0		0.861		4.3 $\pm$ 5.0 <sup>*</sup>		0.370		4.8 $\pm$ 7.1		0.467		5.6 $\pm$ 9.3 <sup>*</sup>		0.788		4.5 $\pm$ 5.9		0.845		0.775
30 min	HM	7.8 $\pm$ 9.4	0.065			11.6 $\pm$ 14.4	0.142			12.8 $\pm$ 13.5	0.155			10.5 $\pm$ 12.8	0.369			12.6 $\pm$ 13.5	0.139			12.1 $\pm$ 13.0 <sup>*</sup>	0.023			0.782
	LM	2.1 $\pm$ 3.2				5.4 $\pm$ 8.5				7.3 $\pm$ 11.6				7.6 $\pm$ 10.7				7.5 $\pm$ 11.2				4.1 $\pm$ 6.2 <sup>*</sup>				0.596
60 min	HM	7.2 $\pm$ 8.2	0.115			11.6 $\pm$ 14.5	0.335			11.9 $\pm$ 13.9	0.606			9.1 $\pm$ 10.2	0.091			10.9 $\pm$ 10.3 <sup>*</sup>	0.049			10.4 $\pm$ 12.6	0.118			0.874
	LM	2.1 $\pm$ 2.9				5.4 $\pm$ 7.3				7.8 $\pm$ 9.2				4.8 $\pm$ 7.5				6.1 $\pm$ 8.2 <sup>*</sup>				5.4 $\pm$ 10.6				0.489
MP (%)																										
5 min	HM	23.5 $\pm$ 15.3 <sup>***</sup>	<0.001	0.128		30.7 $\pm$ 14.6 <sup>***</sup>	<0.001	0.192		27.7 $\pm$ 13.8 <sup>*</sup>	0.019	0.312		27.5 $\pm$ 14.5 <sup>*</sup>	0.021	0.381		25.7 $\pm$ 11.7 <sup>**</sup>	0.004	0.521		25.9 $\pm$ 12.0 <sup>***</sup>	<0.001	0.138		0.577
	LM	7.8 $\pm$ 9.2 <sup>***a</sup>		0.447		10.7 $\pm$ 10.3 <sup>***ab</sup>		0.617		18.4 $\pm$ 12.8 <sup>b</sup>		0.253		18.6 $\pm$ 12.2 <sup>b</sup>		0.539		15.3 $\pm$ 11.7 <sup>**ab</sup>		0.766		13.4 $\pm$ 12.2 <sup>***ab</sup>		0.425		0.007
30 min	HM	19.9 $\pm$ 12.2 <sup>***</sup>	<0.001			25.4 $\pm$ 14.4 <sup>**</sup>	0.005			24.3 $\pm$ 11.2 <sup>**</sup>	0.003			22.2 $\pm$ 12.2	0.330			22.0 $\pm$ 12.0	0.101			22.4 $\pm$ 13.2 <sup>**</sup>	0.008			0.748
	LM	7.3 $\pm$ 7.8 <sup>***</sup>				13.6 $\pm$ 12.7 <sup>**</sup>				14.2 $\pm$ 12.1 <sup>**</sup>				18.3 $\pm$ 14.8				15.9 $\pm$ 13.3				12.2 $\pm$ 10.9 <sup>**</sup>				0.057
60 min	HM	14.9 $\pm$ 12.8 <sup>**</sup>	0.002			23.2 $\pm$ 12.6 <sup>**</sup>	0.001			22.1 $\pm$ 11.0 <sup>**</sup>	0.002			24.2 $\pm$ 13.4 <sup>*</sup>	0.025			25.0 $\pm$ 11.3 <sup>**</sup>	0.003			18.7 $\pm$ 8.3 <sup>**</sup>	0.004			0.075
	LM	4.9 $\pm$ 5.9 <sup>**</sup>				11.4 $\pm$ 7.5 <sup>**</sup>				11.4 $\pm$ 7.9 <sup>**</sup>				14.3 $\pm$ 13.8 <sup>*</sup>				13.2 $\pm$ 11.2 <sup>**</sup>				8.9 $\pm$ 10.6 <sup>**</sup>				0.055
NP (%)																										
5 min	HM	28.2 $\pm$ 19.1 <sup>*</sup>	0.048	0.793		26.5 $\pm$ 20.9	0.805	0.602		27.9 $\pm$ 16.1	0.084	0.950		29.1 $\pm$ 19.2	0.146	0.716		30.6 $\pm$ 21.1	0.108	0.869		29.0 $\pm$ 19.6	0.087	0.885		0.988
	LM	18.8 $\pm$ 15.2 <sup>*</sup>		0.481		24.1 $\pm$ 17.7		0.461		20.0 $\pm$ 14.7		0.619		21.1 $\pm$ 15.4		0.551		19.8 $\pm$ 12.3		0.801		18.3 $\pm$ 13.6		0.617		0.807
30 min	HM	28.3 $\pm$ 16.0 <sup>**</sup>	0.007			30.1 $\pm$ 18.2	0.053			28.5 $\pm$ 19.7 <sup>*</sup>	0.026			33.7 $\pm$ 23.6 <sup>*</sup>	0.014			28.4 $\pm$ 23.2	0.149			32.2 $\pm$ 27.0	0.327			0.950
	LM	16.8 $\pm$ 13.3 <sup>**</sup>				19.9 $\pm$ 12.5				16.9 $\pm$ 14.5 <sup>*</sup>				17.4 $\pm$ 13.1 <sup>*</sup>				17.5 $\pm$ 13.7				21.8 $\pm$ 15.7				0.766
60 min	HM	25.1 $\pm$ 15.6 <sup>*</sup>	0.014			32.1 $\pm$ 15.2 <sup>**</sup>	0.004			29.7 $\pm$ 20.5	0.300			33.0 $\pm$ 19.0 <sup>**</sup>	0.003			27.3 $\pm$ 17.3	0.062			30.1 $\pm$ 21.3 <sup>*</sup>	0.049			0.780
	LM	13.7 $\pm$ 11.7 <sup>*</sup>				18.6 $\pm$ 14.4 <sup>**</sup>				20.8 $\pm$ 13.3				17.3 $\pm$ 10.1 <sup>**</sup>				17.9 $\pm$ 12.6				18.5 $\pm$ 10.9 <sup>*</sup>				0.631
Rapid (%)																										
5 min	HM	15.9 $\pm$ 18.0 <sup>*</sup>	0.025	0.570		21.1 $\pm$ 24.2	0.152	0.943		20.4 $\pm$ 21.2	0.060	0.725		16.9 $\pm$ 20.5	0.485	0.863		21.0 $\pm$ 23.9 <sup>*</sup>	0.020	0.752		19.5 $\pm$ 26.0	0.416	0.769		0.946
	LM	4.7 $\pm$ 6.2 <sup>*</sup>		0.804		7.4 $\pm$ 8.5		0.870		10.0 $\pm$ 12.9		0.935		11.5 $\pm$ 15.0		0.513		9.0 $\pm$ 12.8 <sup>*</sup>		0.718		8.8 $\pm$ 10.1		0.990		0.694
30 min	HM	13.5 $\pm$ 15.6 <sup>*</sup>	0.029			19.8 $\pm$ 25.9	0.172			21.8 $\pm$ 21.9	0.118			17.3 $\pm$ 21.7	0.707			20.4 $\pm$ 20.1	0.090			20.3 $\pm$ 23.6	0.159			0.816
	LM	4.4 $\pm$ 6.9 <sup>*</sup>				9.0 $\pm$ 13.4				11.4 $\pm$ 15.7				13.4 $\pm$ 16.9				12.1 $\pm$ 16.9				8.8 $\pm$ 9.8				0.390
60 min	HM	10.8 $\pm$ 12.2	0.063			18.6 $\pm$ 22.6	0.104			16.7 $\pm$ 19.1	0.403			14.1 $\pm$ 18.1	0.425			16.4 $\pm$ 18.6	0.166			15.3 $\pm$ 20.2	0.217			0.856
	LM	3.5 $\pm$ 4.4				7.6 $\pm$ 11.0				10.5 $\pm$ 13.0				8.2 $\pm$ 10.8				9.6 $\pm$ 11.1				9.2 $\pm$ 13.1				0.626

Supplementary Table S3. Continued...

Medium (%)																													
5 min	HM	22.9 ± 16.5 <sup>***</sup>	<0.001	0.279	27.1 ± 20.2 <sup>**</sup>	0.005	0.850	26.4 ± 19.0	0.064	0.798	27.2 ± 20.5	0.065	0.546	24.2 ± 17.8	0.108	0.651	23.5 ± 17.1 <sup>†</sup>	0.018	0.745	0.937									
	LM	8.0 ± 9.7 <sup>**</sup>		0.574	11.3 ± 11.5 <sup>**</sup>		0.784	16.4 ± 15.4		0.780	15.8 ± 13.9		0.865	15.4 ± 14.5		0.704	12.2 ± 11.3 <sup>†</sup>		0.267	0.177									
30 min	HM	19.8 ± 13.3 <sup>***</sup>	<0.001		24.0 ± 19.8	0.072		22.9 ± 19.0	0.110		21.5 ± 16.7	0.194		23.0 ± 19.1	0.170		20.3 ± 15.5 <sup>†</sup>	0.041		0.998									
	LM	6.7 ± 8.0 <sup>**</sup>			13.5 ± 14.0			14.3 ± 12.8			15.7 ± 14.5			15.8 ± 15.4			12.5 ± 9.4 <sup>†</sup>			0.121									
60 min	HM	15.6 ± 13.8 <sup>***</sup>	<0.001		25.1 ± 15.6 <sup>**</sup>	0.008		23.6 ± 16.8 <sup>†</sup>	0.038		26.1 ± 19.1 <sup>†</sup>	0.017		28.3 ± 20.9 <sup>**</sup>	0.007		20.6 ± 13.5 <sup>**</sup>	0.001		0.239									
	LM	5.2 ± 8.6 <sup>***a</sup>			13.3 ± 9.5 <sup>**b</sup>			13.8 ± 10.8 <sup>**b</sup>			13.6 ± 15.6 <sup>†ab</sup>			12.4 ± 12.1 <sup>**b</sup>			8.0 ± 8.1 <sup>**ab</sup>			0.05									
Slow (%)																													
5 min	HM	22.7 ± 16.7	0.083	0.896	20.5 ± 17.0	0.926	0.776	20.7 ± 13.5	0.298	0.857	21.9 ± 15.4	0.224	0.559	23.5 ± 16.9	0.080	0.572	22.2 ± 15.1	0.076	0.761	0.985									
	LM	16.1 ± 13.2		0.515	20.4 ± 16.0		0.311	16.3 ± 12.2		0.618	17.2 ± 13.5		0.617	16.4 ± 9.7		0.515	15.2 ± 11.3		0.875	0.792									
30 min	HM	22.7 ± 13.8 <sup>†</sup>	0.047		23.2 ± 15.0	0.056		21.3 ± 17.9	0.083		27.5 ± 21.5 <sup>†</sup>	0.019		19.6 ± 18.4	0.415		26.2 ± 23.0	0.261		0.676									
	LM	15.2 ± 12.3 <sup>†</sup>			15.6 ± 11.8			13.0 ± 11.5			14.1 ± 10.4 <sup>†</sup>			12.9 ± 10.2			16.8 ± 12.6			0.827									
60 min	HM	20.8 ± 13.7 <sup>†</sup>	0.037		23.2 ± 12.4 <sup>†</sup>	0.029		23.4 ± 17.9	0.108		26.0 ± 18.1 <sup>†</sup>	0.019		18.5 ± 13.2	0.422		23.3 ± 18.7	0.405		0.772									
	LM	12.0 ± 9.3 <sup>†</sup>			14.4 ± 12.4 <sup>†</sup>			15.8 ± 13.2			14.6 ± 9.0 <sup>†</sup>			15.2 ± 11.6			15.6 ± 9.2			0.912									
Motile VCL (μm/s)																													
5 min	HM	111.8 ± 17.3	0.086	0.825	124.5 ± 22.1	0.144	0.998	125.2 ± 20.5	0.533	0.182	122.6 ± 22.0	0.920	0.899	125.9 ± 22.2 <sup>†</sup>	0.026	0.638	126.1 ± 26.0	0.196	0.674	0.189									
	LM	102.4 ± 19.6		0.243	113.7 ± 28.0		0.923	121.0 ± 26.3		0.607	121.9 ± 26.7		0.885	111.4 ± 21.4 <sup>†</sup>		0.546	116.7 ± 23.6		0.974	0.074									
30 min	HM	108.8 ± 17.8 <sup>**a</sup>	0.007		124.8 ± 23.7 <sup>b</sup>	0.148		135.6 ± 20.2 <sup>**b</sup>	0.002		121.3 ± 20.1 <sup>b</sup>	0.812		132.0 ± 22.7 <sup>b</sup>	0.040		127.2 ± 22.4 <sup>b</sup>	0.164		0.001									
	LM	92.8 ± 20.3 <sup>**a</sup>			114.9 ± 21.6 <sup>b</sup>			118.1 ± 16.9 <sup>**b</sup>			119.6 ± 30.5 <sup>b</sup>			118.6 ± 21.1 <sup>†b</sup>			116.5 ± 29.5 <sup>b</sup>			0.001									
60 min	HM	111.2 ± 17.9 <sup>†a</sup>	0.017		125.0 ± 20.4 <sup>ab</sup>	0.052		130.7 ± 15.7 <sup>b</sup>	0.429		124.2 ± 17.9 <sup>ab</sup>	0.440		130.7 ± 25.6 <sup>b</sup>	0.054		121.1 ± 20.5 <sup>ab</sup>	0.476		0.034									
	LM	97.7 ± 17.5 <sup>†</sup>			111.9 ± 22.3			125.2 ± 25.7			117.3 ± 34.2			113.8 ± 26.7			114.8 ± 31.9			0.092									
Motile VAP (μm/s)																													
5 min	HM	57.6 ± 9.0	0.067	0.661	60.1 ± 10.4	0.343	0.855	61.2 ± 9.6	0.217	0.535	59.2 ± 9.9	0.691	0.791	60.0 ± 8.6 <sup>†</sup>	0.017	0.370	59.5 ± 10.2	0.167	0.991	0.872									
	LM	52.8 ± 8.7		0.199	55.3 ± 10.6		0.798	58.0 ± 7.8		0.280	58.1 ± 10.0		0.863	54.2 ± 7.8 <sup>†</sup>		0.163	56.4 ± 9.3		0.856	0.275									
30 min	HM	54.9 ± 11.1 <sup>†a</sup>	0.026		58.6 ± 10.0 <sup>ab</sup>	0.563		63.3 ± 8.1 <sup>b</sup>	0.073		58.0 ± 8.1 <sup>ab</sup>	0.535		63.6 ± 9.8 <sup>b</sup>	0.103		59.8 ± 8.5 <sup>ab</sup>	0.055		0.014									
	LM	48.2 ± 8.3 <sup>†a</sup>			57.1 ± 8.2 <sup>b</sup>			59.3 ± 6.8 <sup>b</sup>			60.0 ± 13.4 <sup>b</sup>			59.2 ± 8.2 <sup>b</sup>			55.0 ± 11.6 <sup>b</sup>			<0.001									
60 min	HM	57.0 ± 12.1	0.118		60.3 ± 11.8	0.362		64.0 ± 8.8	0.502		59.9 ± 10.0	0.741		63.7 ± 11.5	0.148		59.4 ± 10.4	0.213		0.329									
	LM	51.3 ± 9.3			56.9 ± 10.7			62.9 ± 14.9			58.5 ± 14.7			58.6 ± 12.8			54.5 ± 13.3			0.140									
Motile VSL (μm/s)																													
5 min	HM	45.1 ± 11.9	0.118	0.498	47.3 ± 11.0	0.248	0.690	48.1 ± 10.2	0.094	0.681	46.0 ± 9.0	0.223	0.690	46.7 ± 6.7 <sup>†</sup>	0.032	0.542	45.7 ± 9.7	0.171	0.970	0.908									
	LM	40.0 ± 10.3		0.458	42.2 ± 10.3		0.690	43.3 ± 9.3		0.270	43.1 ± 7.1		0.416	41.8 ± 8.3 <sup>†</sup>		0.336	41.5 ± 11.2		0.547	0.854									
30 min	HM	40.9 ± 12.9	0.172		44.5 ± 9.6	0.267		47.9 ± 8.2	0.368		44.4 ± 8.4	0.567		48.2 ± 11.6	0.494		45.5 ± 8.9 <sup>†</sup>	0.013		0.142									
	LM	36.1 ± 10.0 <sup>†</sup>			42.6 ± 10.4 <sup>ab</sup>			45.6 ± 9.4 <sup>b</sup>			46.3 ± 13.8 <sup>b</sup>			46.0 ± 10.9 <sup>b</sup>			38.5 ± 9.9 <sup>†ab</sup>			0.004									
60 min	HM	43.5 ± 11.7	0.166		45.8 ± 11.9	0.682		50.3 ± 9.9	0.431		46.7 ± 10.5	0.965		50.3 ± 11.1	0.338		46.2 ± 11.1 <sup>†</sup>	0.036		0.359									
	LM	37.8 ± 11.0			44.3 ± 10.3			49.1 ± 15.9			43.1 ± 14.4			46.3 ± 14.3			38.8 ± 10.0 <sup>†</sup>			0.073									



Supplementary Table S3. Continued...

Motile STR (%)																								
5 min	HM	75.3 ± 10.9	0.343	0.330	77.2 ± 7.9	0.147	0.180	76.8 ± 7.0	0.082	0.340	75.9 ± 6.9	0.126	0.543	76.2 ± 6.4	0.306	0.524	74.6 ± 7.8	0.523	0.807	0.887				
	LM	73.2 ± 11.9		0.597	73.6 ± 8.7		0.642	72.5 ± 9.7		0.632	72.8 ± 6.8		0.476	74.0 ± 8.2		0.761	71.9 ± 11.9		0.500	0.979				
30 min	HM	70.8 ± 11.0	0.921		73.7 ± 7.2	0.307		73.8 ± 7.5	0.370		73.7 ± 7.1	0.974		74.0 ± 9.4	0.387		73.3 ± 6.8	0.070		0.784				
	LM	70.4 ± 13.2			71.7 ± 9.9			74.8 ± 9.8			73.8 ± 9.8			75.8 ± 10.1			68.4 ± 11.2			0.150				
60 min	HM	73.0 ± 8.0	0.166		73.2 ± 8.2	0.770		75.8 ± 6.9	0.678		74.5 ± 6.2	0.405		76.2 ± 6.2	0.917		74.3 ± 6.9	0.088		0.668				
	LM	69.5 ± 11.2			74.1 ± 7.3			74.8 ± 8.3			70.4 ± 10.6			75.9 ± 11.1			68.9 ± 10.0			0.132				
Motile LIN (%)																								
5 min	HM	42.4 ± 11.2	0.769	0.446	41.4 ± 10.6	0.574	0.357	40.9 ± 10.4	0.550	0.632	40.0 ± 7.4	0.363	0.558	40.1 ± 7.1	0.724	0.758	38.8 ± 7.4	0.613	0.711	0.820				
	LM	41.4 ± 11.0		0.551	39.8 ± 8.3		0.892	38.2 ± 7.7		0.522	37.9 ± 8.2		0.533	39.4 ± 6.5		0.423	37.6 ± 8.9		0.568	0.636				
30 min	HM	38.7 ± 11.0	0.475		37.2 ± 5.7	0.434		37.9 ± 8.6	0.265		38.2 ± 7.6	0.433		38.5 ± 8.5	0.269		37.5 ± 6.7	0.405		0.987				
	LM	39.2 ± 9.8			39.0 ± 9.5			40.6 ± 8.0			40.4 ± 10.0			41.4 ± 9.2			35.6 ± 8.6			0.321				
60 min	HM	39.6 ± 7.2	0.328		38.2 ± 7.9	0.420		39.9 ± 7.7	0.943		37.9 ± 5.9	0.946		39.7 ± 6.8	0.274		39.0 ± 6.1	0.060		0.927				
	LM	38.3 ± 7.1			40.2 ± 7.2			40.1 ± 7.2			37.8 ± 8.2			42.6 ± 8.9			35.2 ± 6.2			0.060				
Motile WOB (%)																								
5 min	HM	54.1 ± 8.4	0.885	0.704	51.3 ± 9.1	0.699	0.636	51.2 ± 8.9	0.665	0.649	51.1 ± 6.4	0.906	0.648	50.6 ± 6.0	0.733	1	49.9 ± 5.9	0.636	0.655	0.488				
	LM	54.5 ± 7.8		0.878	52.3 ± 7.4		0.889	51.2 ± 6.5		0.631	50.8 ± 7.2		0.555	51.2 ± 5.5		0.247	50.7 ± 5.7		0.830	0.365				
30 min	HM	52.4 ± 7.9	0.574		49.3 ± 6.0 <sup>*</sup>	0.048		49.3 ± 7.3	0.077		49.9 ± 6.6	0.228		50.6 ± 6.7	0.228		49.4 ± 5.6	0.459		0.599				
	LM	53.6 ± 7.0			53.3 ± 7.4 <sup>*</sup>			52.9 ± 6.2			53.0 ± 7.5			52.9 ± 6.4			50.7 ± 6.4			0.731				
60 min	HM	52.7 ± 6.0	0.704		50.3 ± 7.0	0.254		51.0 ± 6.3	0.678		49.4 ± 5.2	0.226		50.6 ± 6.1	0.083		50.9 ± 5.2	0.466		0.661				
	LM	53.5 ± 4.9			53.0 ± 7.4			51.8 ± 5.5			52.3 ± 6.3			54.4 ± 7.2			49.7 ± 5.2			0.263				
Motile ALH (μm)																								
5 min	HM	3.1 ± 0.6	0.883	0.834	3.4 ± 0.8	0.495	0.796	3.4 ± 0.8	0.514	0.104	3.4 ± 0.7	0.539	0.619	3.5 ± 0.8	0.216	0.424	3.5 ± 0.8	0.596	0.676	0.335				
	LM	3.0 ± 0.7		0.152	3.3 ± 0.8		0.752	3.6 ± 0.9		0.573	3.5 ± 0.8		0.877	3.2 ± 0.6		0.499	3.4 ± 0.7		0.973	0.131				
30 min	HM	3.1 ± 0.5 <sup>+</sup> <sup>a</sup>	0.027		3.6 ± 0.7 <sup>ab</sup>	0.236		3.8 ± 0.7 <sup>b</sup>	0.023		3.5 ± 0.6 <sup>b</sup>	0.639		3.7 ± 0.7 <sup>b</sup>	0.129		3.7 ± 0.7 <sup>b</sup>	0.382		0.005				
	LM	2.7 ± 0.6 <sup>+</sup> <sup>a</sup>			3.4 ± 0.7 <sup>b</sup>			3.4 ± 0.6 <sup>b</sup>			3.4 ± 0.9 <sup>b</sup>			3.4 ± 0.7 <sup>b</sup>			3.5 ± 0.9 <sup>b</sup>			0.006				
60 min	HM	3.2 ± 0.5	0.054		3.5 ± 0.6	0.088		3.7 ± 0.5	0.615		3.6 ± 0.5	0.707		3.7 ± 0.7	0.164		3.5 ± 0.5	0.963		0.057				
	LM	2.9 ± 0.3 <sup>a</sup>			3.2 ± 0.6 <sup>ab</sup>			3.6 ± 0.6 <sup>b</sup>			3.5 ± 1.0 <sup>b</sup>			3.3 ± 0.7 <sup>b</sup>			3.5 ± 0.8 <sup>b</sup>			0.029				
Motile BCF (Hz)																								
5 min	HM	22.8 ± 4.3 <sup>+</sup>	0.01	0.144	23.1 ± 3.6 <sup>+</sup>	0.028	0.090	22.9 ± 3.6 <sup>++</sup>	0.002	0.075	22.5 ± 2.5 <sup>++</sup> <sup>a</sup>	0.002	0.053	22.9 ± 3.3 <sup>+</sup>	0.026	0.124	21.8 ± 2.8 <sup>+</sup>	0.028	0.408	0.799				
	LM	20.2 ± 3.9 <sup>+</sup>		0.625	20.9 ± 2.4 <sup>+</sup>		0.588	19.7 ± 2.7 <sup>++</sup>		0.311	19.7 ± 3.2 <sup>++</sup>		0.405	20.9 ± 2.8 <sup>+</sup>		0.595	19.9 ± 2.8 <sup>+</sup>		0.074	0.577				
30 min	HM	20.7 ± 4.0	0.240		21.1 ± 2.6	0.341		20.9 ± 2.9	0.773		20.9 ± 2.8 <sup>ab</sup>	0.268		21.1 ± 3.2	0.331		20.9 ± 2.5 <sup>++</sup>	0.003		0.998				
	LM	19.7 ± 3.9			20.2 ± 3.7			20.8 ± 3.3			19.9 ± 3.0			20.2 ± 3.1			18.1 ± 3.4 <sup>++</sup>			0.129				
60 min	HM	20.7 ± 3.7	0.088		21.4 ± 3.2	0.469		21.3 ± 2.7 <sup>+</sup>	0.024		20.9 ± 2.0 <sup>+</sup> <sup>b</sup>	0.011		21.8 ± 2.5 <sup>+</sup>	0.049		21.0 ± 1.9 <sup>+++</sup>	<0.001		0.838				
	LM	18.9 ± 4.0			20.7 ± 3.4			19.6 ± 2.8 <sup>+</sup>			18.7 ± 3.0 <sup>+</sup>			20.0 ± 2.8 <sup>+</sup>			17.7 ± 3.1 <sup>+++</sup>			0.075				

Supplementary Table S3. Continued...

NP VCL (μm/s)																								
5 min	HM	85.7 ± 22.4	0.174	0.850	96.3 ± 33.2	0.564	0.679	94.8 ± 34.2	0.524	0.874	91.6 ± 31.9	0.606	0.638	95.3 ± 29.8	0.322	0.658	96.5 ± 35.9	0.303	0.749			0.822		
	LM	78.8 ± 23.5		0.674	91.0 ± 31.6		0.892	89.9 ± 36.8		0.545	87.6 ± 33.6		0.980	86.8 ± 26.4		0.809	86.5 ± 30.9		0.917			0.801		
30 min	HM	85.8 ± 25.1	0.066		95.5 ± 32.5	0.475		99.3 ± 41.3	0.742		91.7 ± 29.3	0.431		98.2 ± 33.2	0.392		89.8 ± 27.0	0.949				0.778		
	LM	73.2 ± 19.9			87.1 ± 29.8			91.2 ± 34.2			85.8 ± 36.1			89.8 ± 27.4			90.3 ± 31.0					0.415		
60 min	HM	89.3 ± 20.4	0.054		103.5 ± 28.3	0.087		94.4 ± 28.5	0.502		99.3 ± 27.2	0.184		102.7 ± 32.6	0.188		96.7 ± 26.5	0.164				0.608		
	LM	75.6 ± 20.7			88.3 ± 23.8			101.2 ± 32.2			86.0 ± 33.1			89.4 ± 27.3			84.5 ± 26.5					0.174		
NP VAP (μm/s)																								
5 min	HM	41.1 ± 11.3	0.773	0.858	42.7 ± 13.6	0.790	0.800	42.8 ± 13.8	0.629	0.933	42.1 ± 14.4	0.660	0.694	43.7 ± 11.9	0.242	0.911	41.8 ± 13.9	0.711	0.795			0.988		
	LM	40.6 ± 10.5		0.613	43.6 ± 10.8		0.870	41.3 ± 13.5		0.521	40.4 ± 12.3		0.949	39.8 ± 11.0		0.469	41.3 ± 12.3		0.621			0.909		
30 min	HM	40.3 ± 12.2	0.419		42.0 ± 13.7	0.967		41.7 ± 15.7	0.853		40.2 ± 14.0	0.882		43.8 ± 14.0	0.645		40.8 ± 12.1	0.832				0.954		
	LM	37.4 ± 11.8			42.2 ± 11.0			44.0 ± 11.0			40.4 ± 13.7			43.0 ± 10.2			41.5 ± 10.0					0.448		
60 min	HM	42.3 ± 11.5	0.274		44.8 ± 13.7	0.197		43.2 ± 13.9	0.574		44.0 ± 14.1	0.287		45.3 ± 14.3	0.504		43.5 ± 12.5	0.215				0.986		
	LM	38.7 ± 11.0			41.9 ± 13.0			45.7 ± 11.9			39.2 ± 14.4			43.8 ± 13.0			38.2 ± 14.3					0.419		
NP VSL (μm/s)																								
5 min	HM	27.6 ± 8.8	0.759	0.707	29.3 ± 8.5	0.949	0.632	29.6 ± 9.0	0.344	0.636	28.1 ± 9.3	0.232	0.715	30.5 ± 8.0	0.143	0.767	27.7 ± 9.1	0.951	0.737			0.827		
	LM	28.5 ± 10.3		0.538	29.1 ± 10.2		0.632	27.1 ± 9.4		0.499	25.7 ± 9.2		0.788	26.9 ± 8.9		0.509	27.2 ± 10.0		0.865			0.862		
30 min	HM	25.9 ± 9.5	0.848		26.8 ± 9.7	0.726		27.0 ± 10.8	0.503		26.8 ± 10.4	0.952		28.7 ± 9.7	0.995		26.2 ± 9.4	0.718				0.952		
	LM	25.2 ± 11.8			27.8 ± 8.9			30.1 ± 8.2			27.0 ± 11.0			28.7 ± 11.0			26.6 ± 6.8					0.720		
60 min	HM	27.9 ± 8.3	0.438		29.0 ± 10.0	0.339		28.9 ± 10.0	0.964		29.4 ± 10.7	0.198		30.3 ± 9.8	0.988		28.3 ± 9.3	0.287				0.984		
	LM	25.6 ± 10.1			26.3 ± 9.2			29.5 ± 8.7			24.8 ± 10.7			30.9 ± 13.6			24.7 ± 11.0					0.373		
NP STR (%)																								
5 min	HM	66.0 ± 8.8	0.578	0.558	68.9 ± 9.0 <sup>a</sup>	0.392	0.050	68.8 ± 8.2	0.286	0.095	66.0 ± 7.8	0.259	0.557	69.5 ± 9.0	0.097	0.145	66.2 ± 8.3	0.736	0.357			0.474		
	LM	67.9 ± 13.7		0.348	66.0 ± 13.8		0.379	64.3 ± 10.2		0.408	62.5 ± 12.8		0.781	64.6 ± 11.0		0.827	65.2 ± 12.4		0.457			0.769		
30 min	HM	63.3 ± 8.4	0.517		63.4 ± 7.8 <sup>ab</sup>	0.686		63.0 ± 10.2	0.163		64.1 ± 8.0	0.969		65.4 ± 8.1	0.775		62.2 ± 13.5	0.915				0.912		
	LM	61.4 ± 19.5			64.6 ± 12.3			67.8 ± 12.9			64.0 ± 10.1			65.1 ± 15.6			63.3 ± 8.5					0.849		
60 min	HM	65.1 ± 8.7	0.565		63.5 ± 8.6 <sup>b</sup>	0.339		65.6 ± 8.3	0.489		63.4 ± 8.1	0.548		65.3 ± 7.2	0.631		63.0 ± 7.1	0.512				0.872		
	LM	63.0 ± 12.7			60.5 ± 12.2			63.3 ± 11.1			61.7 ± 9.5			67.2 ± 15.3			61.0 ± 11.0					0.602		
NP LIN (%)																								
5 min	HM	36.2 ± 13.5	0.209	0.281	33.9 ± 7.1	0.657	0.061	34.0 ± 8.8	0.775	0.219	32.8 ± 7.8	1	0.408	35.8 ± 9.4	0.592	0.127	31.8 ± 5.8	0.357	0.877			0.508		
	LM	38.5 ± 12.1		0.296	35.2 ± 12.2		0.459	33.6 ± 7.9		0.244	32.0 ± 11.4		0.701	32.8 ± 8.4		0.587	33.9 ± 9.6		0.257			0.340		
30 min	HM	31.9 ± 7.7	0.602		30.1 ± 5.3	0.093		29.6 ± 9.7 <sup>c</sup>	0.025		30.2 ± 8.5	0.324		32.0 ± 8.9	0.173		30.9 ± 10.4	0.629				0.911		
	LM	33.6 ± 13.4			35.4 ± 13.8			36.3 ± 10.1 <sup>c</sup>			32.8 ± 8.9			34.8 ± 11.6			32.2 ± 7.6					0.795		
60 min	HM	32.5 ± 6.5	0.641		29.9 ± 6.4	0.675		33.3 ± 8.6	0.539		29.9 ± 7.2	0.942		30.8 ± 7.0	0.106		30.7 ± 5.9	0.608				0.579		
	LM	33.7 ± 8.9			31.1 ± 9.4			31.5 ± 8.8			30.4 ± 6.4			36.2 ± 12.5			29.3 ± 10.0					0.270		

Supplementary Table S3. Continued...

NP WOB (%)																				
5 min	HM	50.5 ± 7.4	0.116	0.695	47.3 ± 8.3	0.111	0.465	47.6 ± 8.3	0.333	0.312	47.8 ± 8.0	0.496	0.551	49.3 ± 7.5	0.951	0.343	46.4 ± 6.2	0.060	0.895	0.477
	LM	54.3 ± 8.8		0.463	51.8 ± 10.8		0.615	49.9 ± 7.3		0.279	49.7 ± 10.2		0.712	48.1 ± 8.8		0.389	50.3 ± 7.9		0.269	0.262
30 min	HM	49.1 ± 7.2	0.366		46.5 ± 7.7 <sup>*</sup>	0.033		44.8 ± 9.4 <sup>***</sup>	0.009		45.5 ± 9.9	0.112		47.5 ± 9.0	0.201		47.3 ± 8.3	0.322		0.587
	LM	51.4 ± 9.7			53.1 ± 12.3 <sup>*</sup>			52.0 ± 9.0 <sup>***</sup>			49.8 ± 8.5			50.8 ± 7.9			49.7 ± 8.1			0.810
60 min	HM	48.9 ± 5.9	0.247		45.4 ± 6.7	0.109		48.5 ± 7.6	0.828		45.3 ± 7.9	0.431		45.7 ± 7.1 <sup>*</sup>	0.039		47.0 ± 6.1	0.850		0.407
	LM	51.5 ± 7.3			49.7 ± 9.2			48.0 ± 7.5			47.8 ± 7.4			51.6 ± 9.6 <sup>*</sup>			46.0 ± 11.4			0.338
MP VCL (μm/s)																				
5 min	HM	122.6 ± 23.6	0.29	0.531	128.7 ± 27.9	0.757	0.314	135.7 ± 21.9	0.699	0.107	134.0 ± 26.2	0.378	0.685	135.2 ± 24.7	0.121	0.444	133.5 ± 25.3	0.879	0.373	0.338
	LM	130.5 ± 22.6		0.087	131.6 ± 31.8		0.282	133.0 ± 25.5		0.656	141.3 ± 29.9		0.919	123.9 ± 23.1		0.419	134.8 ± 29.0		0.069	0.438
30 min	HM	125.3 ± 17.4 <sup>a</sup>	0.081		139.5 ± 21.8 <sup>ab</sup>	0.359		149.5 ± 26.5 <sup>***b</sup>	0.003		135.5 ± 21.8 <sup>ab</sup>	0.693		143.9 ± 24.9 <sup>ab</sup>	0.152		140.3 ± 26.4 <sup>ab</sup>	0.484		0.020
	LM	114.4 ± 20.4			133.6 ± 17.5			126.3 ± 22.5 <sup>**</sup>			138.5 ± 28.1			125.9 ± 35.1			133.6 ± 34.8			0.121
60 min	HM	129.7 ± 20.0	0.930		136.0 ± 21.4	0.061		146.4 ± 20.3 <sup>*</sup>	0.033		139.8 ± 12.1	0.760		140.5 ± 19.1	0.533		129.9 ± 20.3 <sup>*</sup>	0.026		0.061
	LM	129.0 ± 24.7 <sup>ac</sup>			123.0 ± 17.4 <sup>c</sup>			129.1 ± 25.7 <sup>ac</sup>			142.2 ± 30.6 <sup>ab</sup>			135.9 ± 23.0 <sup>abc</sup>			160.3 ± 38.6 <sup>ab</sup>			0.030
MP VAP (μm/s)																				
5 min	HM	65.7 ± 9.6	0.902	0.538	66.1 ± 7.9	0.667	0.720	67.9 ± 8.3	0.535	0.321	68.0 ± 8.2	0.530	0.669	67.5 ± 10.3	0.321	0.386	67.8 ± 7.9	0.651	0.908	0.899
	LM	67.3 ± 9.6		0.082	64.9 ± 10.6		0.910	66.3 ± 9.6		0.925	69.8 ± 10.7		0.325	64.7 ± 7.7		0.374	66.6 ± 9.9		0.605	0.548
30 min	HM	64.6 ± 13.5	0.283		67.1 ± 10.0	0.724		70.1 ± 7.3	0.113		67.4 ± 8.0	0.966		71.2 ± 10.4	0.294		66.9 ± 7.0	0.932		0.217
	LM	60.7 ± 6.9			66.0 ± 11.5			65.8 ± 10.5			67.6 ± 11.4			68.3 ± 7.6			66.6 ± 14.9			0.363
60 min	HM	68.7 ± 12.7	0.817		68.5 ± 10.0	0.244		71.6 ± 8.2	0.082		69.6 ± 7.2	0.280		70.6 ± 8.1	0.366		67.6 ± 7.5	0.424		0.789
	LM	67.6 ± 12.4			64.5 ± 9.7			67.1 ± 8.8			73.2 ± 11.2			67.6 ± 11.0			71.0 ± 15.6			0.350
MP VSL (μm/s)																				
5 min	HM	55.4 ± 12.9	0.485	0.466	53.2 ± 12.1	0.883	0.830	53.9 ± 13.2	0.782	0.664	54.5 ± 10.5	0.837	0.468	53.7 ± 13.2	0.625	0.458	54.9 ± 12.0	0.073	0.750	0.991
	LM	52.5 ± 11.7		0.472	52.7 ± 13.1		0.641	52.5 ± 12.9		0.865	53.9 ± 10.1		0.887	53.4 ± 10.7		0.930	48.7 ± 11.3		0.777	0.741
30 min	HM	50.9 ± 17.6	0.365		52.8 ± 11.7	0.550		53.7 ± 11.4	0.826		52.8 ± 11.8	0.876		54.0 ± 11.6	0.991		53.2 ± 11.3	0.30		0.998
	LM	49.0 ± 10.3			50.1 ± 16.7			52.3 ± 14.3			52.3 ± 12.5			54.5 ± 10.5			50.1 ± 12.3			0.823
60 min	HM	56.1 ± 13.6	0.777		55.0 ± 11.7	0.836		56.8 ± 11.5	0.804		57.3 ± 12.2	0.206		58.1 ± 12.5	0.181		55.8 ± 11.0	0.351		0.981
	LM	54.2 ± 13.5			55.2 ± 11.7			54.6 ± 14.2			53.9 ± 10.7			54.5 ± 11.3			51.7 ± 12.4			0.988
MP STR (%)																				
5 min	HM	83.9 ± 11.6 <sup>*</sup>	0.027	0.143	80.3 ± 13.0	0.903	0.896	79.4 ± 12.0	0.815	0.680	80.5 ± 9.6	0.865	0.546	79.4 ± 11.8	0.388	0.539	81.0 ± 11.5	0.173	0.643	0.798
	LM	78.1 ± 9.3 <sup>*</sup>		0.879	80.6 ± 13.2		0.272	79.7 ± 13.3		0.949	79.2 ± 11.1		0.768	82.3 ± 11.5		0.821	75.1 ± 14.5		0.961	0.519
30 min	HM	76.2 ± 18.3	0.821		79.0 ± 10.6	0.807		76.8 ± 12.6	0.531		78.0 ± 12.2	0.814		76.6 ± 13.2	0.593		79.3 ± 11.5	0.503		0.953
	LM	80.0 ± 11.1			75.6 ± 15.4			79.1 ± 11.8			77.9 ± 11.9			80.7 ± 9.9			76.3 ± 13.3			0.757
60 min	HM	81.4 ± 9.9	0.656		80.6 ± 10.5	0.270		79.7 ± 11.3	0.497		81.6 ± 11.1	0.055		81.4 ± 11.4	0.492		82.4 ± 9.2	0.105		0.979
	LM	79.0 ± 11.4			84.6 ± 8.3			80.5 ± 13.1			76.4 ± 13.9			80.3 ± 9.9			75.2 ± 15.0			0.339



Supplementary Table S3. Continued...

MP LIN (%)																							
5 min	HM	49.3 ± 13.3	0.225	0.435	47.0 ± 16.0	0.705	0.326	44.1 ± 13.7	0.694	0.622	45.7 ± 12.3	0.468	0.677	43.9 ± 13.7	0.510	0.656	45.9 ± 13.5	0.220	0.443	0.791			
	LM	44.5 ± 10.4		0.771	45.6 ± 14.6		0.747	42.7 ± 10.5		0.756	43.2 ± 11.4		0.885	47.4 ± 11.0		0.872	41.1 ± 12.3		0.425	0.558			
30 min	HM	44.0 ± 15.8	0.567		41.0 ± 10.5	0.915		40.5 ± 12.8	0.195		43.1 ± 11.6	0.681		41.8 ± 12.2	0.101		42.2 ± 11.9	0.910		0.945			
	LM	46.6 ± 12.0			40.6 ± 12.8			44.4 ± 9.2			41.6 ± 12.1			47.0 ± 15.3			41.6 ± 12.5			0.450			
60 min	HM	46.5 ± 11.5	0.417		44.2 ± 12.4	0.422		42.2 ± 11.6	0.436		43.1 ± 10.0	0.212		44.5 ± 11.5	0.901		46.6 ± 11.1 <sup>+</sup>	0.015		0.803			
	LM	43.9 ± 10.9			47.6 ± 11.9			45.7 ± 15.1			43.0 ± 13.2			45.1 ± 14.6			36.1 ± 10.8 <sup>+</sup>			0.297			
MP WOB (%)																							
5 min	HM	56.8 ± 9.9	0.553	0.705	56.0 ± 13.1	0.612	0.199	53.5 ± 10.8	0.702	0.587	55.0 ± 10.8	0.718	0.468	53.1 ± 10.4	0.482	0.996	54.6 ± 10.1	0.281	0.345	0.846			
	LM	55.0 ± 8.2		0.775	54.0 ± 11.7		0.514	52.5 ± 7.8		0.536	53.3 ± 8.5		0.640	55.6 ± 7.8		0.822	53.0 ± 9.9		0.187	0.852			
30 min	HM	54.2 ± 12.1	0.571		50.5 ± 8.1	0.420		50.7 ± 9.9	0.131		52.9 ± 8.1	0.706		52.8 ± 10.4	0.369		51.2 ± 9.2	0.850		0.763			
	LM	56.2 ± 9.1			52.6 ± 8.3			54.5 ± 6.6			51.9 ± 9.4			56.2 ± 13.1			52.5 ± 10.1			0.567			
60 min	HM	55.6 ± 9.6	0.441		53.2 ± 9.9	0.653		51.4 ± 8.5	0.310		51.7 ± 6.6	0.311		53.0 ± 8.5	0.843		55.1 ± 8.9 <sup>+</sup>	0.018		0.612			
	LM	53.9 ± 7.2			54.7 ± 9.9			55.0 ± 12.0			54.9 ± 11.1			53.8 ± 13.7			46.8 ± 8.7 <sup>+</sup>			0.385			
MP ALH (μm)																							
5 min	HM	3.1 ± 0.9	0.069	0.339	3.4 ± 1.1	0.660	0.239	3.6 ± 0.9	0.604	0.094	3.6 ± 0.8	0.423	0.448	3.6 ± 1.0	0.633	0.184	3.6 ± 1.0	0.319	0.234	0.415			
	LM	3.7 ± 0.8		0.365	3.6 ± 1.0		0.251	3.8 ± 1.0		0.615	3.9 ± 1.0		0.678	3.4 ± 0.9		0.279	3.9 ± 1.0		0.066	0.590			
30 min	HM	4.8 ± 6.6	0.713		3.8 ± 0.8	0.817		4.1 ± 1.0 <sup>+</sup>	0.017		3.8 ± 0.8	0.791		4.0 ± 0.9	0.234		4.0 ± 1.0	0.565		0.198			
	LM	3.3 ± 0.8			3.8 ± 0.7			3.5 ± 0.6 <sup>+</sup>			3.9 ± 1.0			3.7 ± 1.0			3.8 ± 1.2			0.198			
60 min	HM	3.4 ± 0.7	0.824		3.7 ± 0.8	0.185		4.1 ± 0.8	0.075		3.9 ± 0.5	0.442		3.9 ± 0.7	0.551		3.6 ± 0.6 <sup>***</sup>	<0.001		0.062			
	LM	3.5 ± 0.8 <sup>+</sup>			3.4 ± 0.6 <sup>+</sup>			3.6 ± 1.0 <sup>+</sup>			4.1 ± 1.0 <sup>ab</sup>			3.9 ± 0.6 <sup>+</sup>			4.7 ± 1.0 <sup>***b</sup>			0.001			
MP BCF (Hz)																							
5 min	HM	25.0 ± 5.0 <sup>++</sup>	0.007	0.062	24.0 ± 5.5	0.240	0.407	23.3 ± 4.5	0.063	0.265	23.0 ± 3.6	0.118	0.395	23.2 ± 6.4	0.376	0.372	23.2 ± 4.8	0.078	0.336	0.762			
	LM	20.7 ± 4.1 <sup>++</sup>		0.164	21.9 ± 4.8		0.366	20.9 ± 4.2		0.499	21.3 ± 4.6		0.162	22.5 ± 5.0		0.248	20.6 ± 4.8		0.459	0.732			
30 min	HM	21.6 ± 4.9	0.598		22.1 ± 4.3	0.264		21.3 ± 4.2	0.826		21.7 ± 3.5	0.131		21.1 ± 4.6	0.977		21.4 ± 3.6	0.181		0.979			
	LM	20.7 ± 4.5			20.4 ± 4.9			21.7 ± 3.8			19.8 ± 4.6			21.0 ± 4.5			20.1 ± 8.6			0.882			
60 min	HM	22.5 ± 4.9	0.595		23.4 ± 4.6	0.551		22.0 ± 4.4	0.219		21.8 ± 3.5 <sup>+</sup>	0.033		22.2 ± 4.1	0.120		22.2 ± 2.9 <sup>***</sup>	<0.001		0.894			
	LM	21.4 ± 6.2			22.5 ± 3.9			20.1 ± 4.2			18.2 ± 5.7 <sup>+</sup>			19.8 ± 5.0			17.9 ± 3.3 <sup>***</sup>			0.079			
RP VCL (μm/s)																							
5 min	HM	141.0 ± 14.0	0.796	0.143	149.6 ± 19.3	0.356	0.226	143.8 ± 26.9 <sup>+</sup>	0.715	0.030	152.7 ± 20.6	0.786	0.174	157.1 ± 30.2	0.329	0.441	153.7 ± 20.8	0.220	0.398	0.277			
	LM	147.0 ± 25.9		0.889	142.8 ± 18.4		0.210	147.1 ± 22.7		0.086	153.1 ± 19.3		0.723	146.9 ± 20.5		0.831	147.5 ± 29.0		0.931	0.933			
30 min	HM	147.1 ± 14.5	0.566		157.9 ± 27.0	0.157		158.9 ± 26.3 <sup>ab</sup>	0.125		157.8 ± 22.5	0.549		159.2 ± 21.4	0.222		154.8 ± 22.4	0.755		0.700			
	LM	143.0 ± 20.3			143.3 ± 22.6			145.2 ± 21.4			152.0 ± 27.2			150.9 ± 27.8			151.5 ± 34.2			0.908			
60 min	HM	151.4 ± 13.2	0.587		164.2 ± 18.2	0.378		167.8 ± 22.0 <sup>+</sup>	0.670		169.1 ± 28.3	0.850		168.3 ± 28.0	0.208		163.7 ± 20.2	0.469		0.390			
	LM	146.8 ± 24.3			156.9 ± 19.6			163.9 ± 25.4			160.1 ± 26.1			153.5 ± 21.9			169.0 ± 57.7			0.737			

Supplementary Table S3. Continued...

RP VAP ( $\mu\text{m/s}$ )																					
60 min	5 min	HM	81.2 $\pm$ 13.6	0.438	0.351	80.7 $\pm$ 13.3	0.378	0.210	84.9 $\pm$ 12.8	0.365	0.156	82.2 $\pm$ 13.2	0.983	0.108	82.4 $\pm$ 15.8 <sup>*</sup>	0.019	0.065	84.6 $\pm$ 12.4	0.114	0.194	0.924
		LM	77.4 $\pm$ 15.2		0.606	75.8 $\pm$ 10.9		0.137	80.7 $\pm$ 13.3		0.057	80.0 $\pm$ 12.1		0.170	72.1 $\pm$ 7.8 <sup>*</sup>		0.140	78.2 $\pm$ 15.3		0.915	0.600
	30 min	HM	85.5 $\pm$ 12.6	0.065		81.3 $\pm$ 14.4	0.441		84.6 $\pm$ 11.9	0.399		82.9 $\pm$ 11.5	0.682		86.4 $\pm$ 12.7	0.180		83.4 $\pm$ 11.6	0.334		0.878
		LM	75.7 $\pm$ 11.4			77.3 $\pm$ 10.7			80.6 $\pm$ 15.0			85.0 $\pm$ 15.2			82.5 $\pm$ 20.2			77.7 $\pm$ 18.6			0.724
		HM	88.4 $\pm$ 13.7	0.316		90.1 $\pm$ 17.2	0.803		92.1 $\pm$ 10.7	0.890		91.1 $\pm$ 12.2	0.849		94.3 $\pm$ 15.4	0.227		91.5 $\pm$ 13.9	0.469		0.925
		LM	82.0 $\pm$ 14.8			88.4 $\pm$ 15.6			92.9 $\pm$ 15.6			92.2 $\pm$ 16.6			85.9 $\pm$ 15.7			88.7 $\pm$ 28.5			0.751
RP VSL ( $\mu\text{m/s}$ )																					
60 min	5 min	HM	75.0 $\pm$ 14.2	0.410	0.565	73.4 $\pm$ 13.4	0.380	0.277	78.3 $\pm$ 13.2	0.331	0.295	74.2 $\pm$ 12.5	0.851	0.180	73.4 $\pm$ 14.3 <sup>*,a</sup>	0.010	0.045	76.6 $\pm$ 12.2	0.087	0.283	0.850
		LM	69.3 $\pm$ 15.4		0.791	69.1 $\pm$ 11.5		0.065	73.6 $\pm$ 14.5		0.111	72.2 $\pm$ 11.9		0.185	64.3 $\pm$ 6.6 <sup>*</sup>		0.125	70.8 $\pm$ 14.6		0.482	0.588
	30 min	HM	77.7 $\pm$ 14.2	0.132		72.6 $\pm$ 13.5	0.395		75.7 $\pm$ 11.9	0.570		74.1 $\pm$ 10.6	0.547		77.1 $\pm$ 12.0 <sup>ab</sup>	0.222		75.7 $\pm$ 11.6	0.261		0.879
		LM	69.1 $\pm$ 11.7			68.6 $\pm$ 8.7			72.9 $\pm$ 15.2			77.1 $\pm$ 15.0			74.8 $\pm$ 19.3			69.4 $\pm$ 17.3			0.690
		HM	80.7 $\pm$ 13.6	0.201		81.0 $\pm$ 17.1	0.867		82.4 $\pm$ 9.7	0.744		81.1 $\pm$ 10.8	0.626		85.2 $\pm$ 14.7 <sup>b</sup>	0.223		82.7 $\pm$ 14.0	0.694		0.950
		LM	73.0 $\pm$ 13.4			79.9 $\pm$ 15.0			83.9 $\pm$ 14.5			83.8 $\pm$ 16.1			77.3 $\pm$ 14.0			79.3 $\pm$ 25.1			0.686
RP STR (%)																					
60 min	5 min	HM	91.9 $\pm$ 3.1 <sup>*</sup>	0.043	0.507	90.6 $\pm$ 2.8	0.985	0.357	91.9 $\pm$ 3.5 <sup>a</sup>	0.389	0.019	90.0 $\pm$ 4.1	0.917	0.628	88.9 $\pm$ 4.2	0.715	0.538	90.4 $\pm$ 3.4	0.713	0.928	0.090
		LM	89.3 $\pm$ 3.8 <sup>*</sup>		0.324	90.5 $\pm$ 3.4		0.389	90.7 $\pm$ 4.7		0.922	89.9 $\pm$ 2.9		0.835	89.1 $\pm$ 2.1		0.461	89.9 $\pm$ 3.2		0.842	0.860
	30 min	HM	90.6 $\pm$ 3.7	0.760		89.1 $\pm$ 2.5	0.739		89.2 $\pm$ 2.9 <sup>b</sup>	0.391		89.2 $\pm$ 2.5	0.289		89.0 $\pm$ 3.4	0.251		90.5 $\pm$ 2.1	0.220		0.376
		LM	91.1 $\pm$ 2.9			88.7 $\pm$ 3.6			90.1 $\pm$ 3.2			90.4 $\pm$ 3.2			90.4 $\pm$ 3.0			89.0 $\pm$ 4.3			0.562
		HM	91.0 $\pm$ 2.4	0.105		89.5 $\pm$ 3.4	0.650		89.3 $\pm$ 2.9 <sup>b</sup>	0.393		88.9 $\pm$ 2.7	0.190		90.1 $\pm$ 2.3	0.945		90.1 $\pm$ 3.2	0.718		0.529
		LM	88.9 $\pm$ 3.2			90.1 $\pm$ 2.6			90.3 $\pm$ 2.7			90.7 $\pm$ 3.6			90.0 $\pm$ 2.1			89.5 $\pm$ 4.2			0.856
RP LIN (%)																					
60 min	5 min	HM	54.9 $\pm$ 9.8	0.057	0.997	50.6 $\pm$ 10.7	0.859	0.612	57.4 $\pm$ 15.2	0.199	0.097	50.6 $\pm$ 9.5	0.786	0.671	48.8 $\pm$ 10.8	0.591	0.513	51.8 $\pm$ 10.8	0.561	0.924	0.217
		LM	48.7 $\pm$ 12.2		0.898	49.8 $\pm$ 10.3		0.686	51.1 $\pm$ 11.2		0.959	48.4 $\pm$ 7.7		0.398	45.1 $\pm$ 5.9		0.089	49.4 $\pm$ 11.0		0.832	0.781
	30 min	HM	54.9 $\pm$ 12.0	0.558		47.7 $\pm$ 8.5	0.515		49.6 $\pm$ 8.5	0.676		48.1 $\pm$ 7.1	0.354		50.0 $\pm$ 8.7	0.589		50.8 $\pm$ 8.3	0.252		0.312
		LM	50.1 $\pm$ 12.9			49.9 $\pm$ 8.1			50.8 $\pm$ 7.9			52.9 $\pm$ 11.8			50.7 $\pm$ 8.5			46.9 $\pm$ 8.6			0.810
		HM	54.6 $\pm$ 9.9	0.503		51.5 $\pm$ 12.0	0.756		50.6 $\pm$ 8.8	0.199		49.2 $\pm$ 6.1	0.345		52.6 $\pm$ 9.9	0.951		52.1 $\pm$ 10.3	0.290		0.791
		LM	51.4 $\pm$ 12.0			52.9 $\pm$ 8.6			51.8 $\pm$ 6.7			54.2 $\pm$ 12.7			51.2 $\pm$ 4.3			48.0 $\pm$ 3.0			0.786
RP WOB (%)																					
60 min	5 min	HM	59.2 $\pm$ 9.0	0.086	0.977	55.4 $\pm$ 10.4	0.818	0.614	61.8 $\pm$ 14.2	0.193	0.153	55.7 $\pm$ 9.0	0.722	0.761	54.3 $\pm$ 10.1	0.576	0.520	56.8 $\pm$ 10.3	0.518	0.875	0.296
		LM	54.1 $\pm$ 11.3		0.812	54.5 $\pm$ 9.7		0.629	55.9 $\pm$ 9.9		0.911	53.4 $\pm$ 7.1		0.335	50.3 $\pm$ 5.7		0.066	54.3 $\pm$ 10.4		0.881	0.786
	30 min	HM	59.9 $\pm$ 10.8	0.412		53.1 $\pm$ 8.1	0.405		55.2 $\pm$ 8.1	0.751		53.6 $\pm$ 6.7	0.407		55.7 $\pm$ 8.1	0.857		55.7 $\pm$ 8.1	0.271		0.318
		LM	54.6 $\pm$ 12.5			55.9 $\pm$ 8.5			56.1 $\pm$ 7.0			57.9 $\pm$ 10.8			55.8 $\pm$ 7.8			52.3 $\pm$ 7.2			0.788
		HM	59.6 $\pm$ 9.5	0.651		56.8 $\pm$ 11.2	0.755		56.3 $\pm$ 8.3	0.369		55.1 $\pm$ 5.6	0.529		58.0 $\pm$ 10.1	0.951		57.3 $\pm$ 9.5	0.277		0.862
		LM	57.4 $\pm$ 12.3			58.2 $\pm$ 8.2			57.1 $\pm$ 5.9			59.3 $\pm$ 12.0			56.6 $\pm$ 4.1			53.5 $\pm$ 2.2			0.677

Supplementary Table S3. Continued...

RP ALH (μm)																							
5 min	HM	3.3 ± 0.7	0.385	0.431	4.9 ± 4.3	0.307	0.675	3.4 ± 1.1 <sup>a</sup>	0.165	0.018	3.7 ± 0.8 <sup>a</sup>	0.213	0.026	4.1 ± 1.3	0.677	0.983	3.7 ± 0.9	0.793	0.313	0.179			
	LM	4.0 ± 0.9		0.401	3.5 ± 1.0		0.556	3.9 ± 0.9		0.018	4.0 ± 1.0		0.989	3.9 ± 0.9		0.883	3.8 ± 1.2		0.733	0.832			
30 min	HM	3.6 ± 0.8	0.725		4.1 ± 1.0	0.582		4.1 ± 0.8 <sup>b</sup>	0.250		4.2 ± 0.9 <sup>ab</sup>	0.573		4.1 ± 0.9	0.636		4.0 ± 0.8	0.780		0.556			
	LM	3.5 ± 0.8			3.9 ± 1.0			3.7 ± 0.7			3.9 ± 1.1			4.0 ± 1.0			3.9 ± 1.0			0.886			
60 min	HM	3.6 ± 0.7	0.987		4.1 ± 0.9	0.489		4.3 ± 0.9 <sup>b</sup>	0.512		4.5 ± 0.8 <sup>b</sup>	0.975		4.1 ± 0.8	0.903		4.3 ± 1.2	0.690		0.197			
	LM	3.6 ± 1.0			3.8 ± 0.8			4.2 ± 0.8			4.0 ± 1.2			4.1 ± 0.7			4.2 ± 1.2			0.709			
RP BCF (Hz)																							
5 min	HM	27.1 ± 5.0 <sup>***</sup>	<0.001	0.452	25.2 ± 3.2	0.745	0.289	25.7 ± 3.9 <sup>a</sup>	0.059	0.039	26.6 ± 4.7 <sup>a</sup>	0.217	0.010	23.5 ± 4.6	0.817	0.342	25.3 ± 5.4	0.18	0.324	0.253			
	LM	16.3 ± 9.0 <sup>***a</sup>	0.040		26.8 ± 6.3 <sup>b</sup>		0.102	22.2 ± 6.3 <sup>b</sup>		0.799	23.3 ± 4.4 <sup>b</sup>		0.383	23.1 ± 4.4 <sup>b</sup>		0.687	22.9 ± 3.7 <sup>b</sup>		0.724	0.020			
30 min	HM	25.5 ± 6.4	0.847		23.0 ± 4.0	0.959		22.8 ± 3.3 <sup>b</sup>	0.609		22.7 ± 3.0 <sup>b</sup>	0.606		23.3 ± 4.0	0.444		23.0 ± 3.5	0.269		0.450			
	LM	24.9 ± 6.4 <sup>b</sup>			21.2 ± 8.0			23.5 ± 4.6			23.2 ± 2.6			22.2 ± 3.7			22.3 ± 6.3			0.450			
60 min	HM	24.5 ± 4.6	0.630		23.8 ± 4.0	0.314		23.1 ± 4.0 <sup>ab</sup>	0.630		23.2 ± 3.0 <sup>b</sup>	0.207		25.3 ± 4.2 <sup>c</sup>	0.038		23.4 ± 5.2	0.320		0.689			
	LM	25.8 ± 7.1 <sup>ab</sup>			25.5 ± 3.8			22.2 ± 5.9			21.2 ± 4.4			21.7 ± 2.8 <sup>c</sup>			21.1 ± 4.8			0.165			

ALH, average path velocity; BCF, beat cross frequency; CAP, capacitating-HTF; HTF, human tubal fluid; HM, high motile subpopulation; LIN, linearity; LM, low motile subpopulation; MP, medium-progressive; min, minutes; NP, non-progressive; PRL, prolactin; Prog, progressive; RP, rapid-progressive; SD, standard deviation; SP *p*, t-test between subpopulations; STR, straightness; TP *p*, t test between time points; VAP, average path velocity; VCL, curvilinear velocity; VSL, straight-line velocity; WOB, wobble. Values labelled in bold with an asterisks in the same column were significantly different between the HM and LM subpopulations for individual media and SCA parameters (**\**p* < 0.05**, **\*\**p* < 0.01** and **\*\*\**p* < 0.001**). Values labelled in bold and red with an asterisks in the same column were significantly different between the 5 and 30 minutes for individual subpopulations and media (**\**p* < 0.05** and **\*\**p* < 0.01**). Student's t-test was used or the Mann-Whitney test when normal distribution was absent. <sup>a, b, c, d</sup> Values labelled with different superscript letters in the same row were significantly different between the various media for individual subpopulations and SCA parameters. One-way ANOVA was used for parametric distributions or Kruskal-Wallis test for non-parametric distributions.



**Supplementary Table S4** - Percentage hyperactivation in both low motile and high motile sperm subpopulations after treatment with HTF, CAP, HD-C, 1.98  $\mu$ M progesterone, 3.96  $\mu$ M progesterone, 19.8  $\mu$ M progesterone and 11 mM myo-inositol at 5, 15, 30, 45 and 60 minutes (mean $\pm$ SD) (n=20).

HTF				CAP		HD-C		1.98 μM PRG		3.96 μM PRG		19.8 μM PRG		11 mM MYO		ANOVA						
Mean ± SD		SP	p	Mean ± SD		SP	p	Mean ± SD		SP	p	Mean ± SD		SP	p							
5 minutes																						
HM	18.0 ± 11.5 <sup>a</sup>		0.081	29.8 ± 17.1 <sup>ab</sup>		0.133	42.4 ± 20.1 <sup>b</sup>		0.163	29.8 ± 17.8 <sup>ab</sup>		0.185	37.9 ± 18.8 <sup>b</sup>		0.210	35.67 ± 17.8 <sup>b</sup>		0.095	36.1 ± 17.0 <sup>*b</sup>		0.022	0.005
LM	10.8 ± 9.5 <sup>a</sup>			22.6 ± 14.7 <sup>ab</sup>			33.5 ± 19.3 <sup>b</sup>			23.2 ± 16.9 <sup>ab</sup>			30.2 ± 19.5 <sup>b</sup>			26.0 ± 18.0 <sup>ab</sup>			23.9 ± 16.1 <sup>*ab</sup>			0.009
15 minutes																						
HM	25.0 ± 13.3 <sup>***</sup>		<0.001	35.4 ± 17.2		0.085	43.1 ± 16.1		0.217	34.5 ± 16.7		0.178	41.0 ± 16.7 <sup>*</sup>		0.022	37.1 ± 16.6		0.060	35.6 ± 16.7		0.149	0.067
LM	8.8 ± 5.8 <sup>***a</sup>			26.2 ± 15.8 <sup>b</sup>			35.7 ± 21.1 <sup>b</sup>			26.2 ± 21.4 <sup>b</sup>			27.7 ± 18.7 <sup>*b</sup>			27.0 ± 21.7 <sup>b</sup>			27.8 ± 16.9 <sup>b</sup>			0.003
30 minutes																						
HM	24.1 ± 11.4 <sup>***</sup>		<0.001	35.2 ± 17.9		0.082	35.9 ± 16.1		0.230	29.4 ± 16.0		0.404	34.7 ± 16.8		0.091	30.8 ± 17.0		0.151	27.6 ± 13.7		0.414	0.245
LM	8.64 ± 8.5 <sup>***</sup>			25.6 ± 16.3			28.5 ± 21.7			24.5 ± 20.5			25.1 ± 18.2			23.5 ± 20.0			23.3 ± 18.9			0.100
45 minutes																						
HM	17.2 ± 9.9 <sup>***</sup>		<0.001	27.9 ± 12.5		0.079	27.1 ± 14.9		0.605	25.1 ± 16.7		0.122	30.4 ± 15.2		0.085	23.9 ± 12.2		0.176	23.8 ± 11.9		0.599	0.172
LM	4.0 ± 6.6 <sup>***a</sup>			20.2 ± 14.6 <sup>b</sup>			24.4 ± 17.7 <sup>b</sup>			17.7 ± 16.9 <sup>b</sup>			21.7 ± 16.2 <sup>b</sup>			19.4 ± 18.8 <sup>b</sup>			21.2 ± 18.1 <sup>b</sup>			0.008
60 minutes																						
HM	13.8 ± 9.8 <sup>**</sup>		0.005	21.0 ± 14.8		0.212	21.7 ± 12.7		0.568	21.1 ± 12.3		0.098	25.5 ± 14.7 <sup>*</sup>		0.021	20.8 ± 12.1		0.050	20.1 ± 10.2		0.133	0.304
LM	3.0 ± 7.0 <sup>**a</sup>			16.0 ± 15.1 <sup>b</sup>			19.4 ± 13.3 <sup>b</sup>			15.46 ± 17.5 <sup>b</sup>			14.8 ± 13.9 <sup>*b</sup>			12.7 ± 12.9 <sup>b</sup>			14.7 ± 12.0 <sup>b</sup>			0.024

CAP, capacitating-HTF; HD-C, HD capacitating medium; HM, high motile; HTF, human tubal fluid; LM, low motile; min, minutes; MYO, myo-inositol; PRG, progesterone; SD, standard deviation and SP *p*, t test between subpopulations. <sup>a, b, c, d</sup> Values labelled with different superscript letters in the same row were significantly different between the various media for individual subpopulations and time points. One-way ANOVA for parametric distributions or Kruskal-Wallis test for non-parametric distributions was used. Values labelled with an asterisks in the same column were significantly different between the HM and LM subpopulations for individual media and time points (\**p* < 0.05, \*\**p* < 0.01 and \*\*\**p* < 0.001). Student's t-test was used or the Mann-Whitney test when normal distribution was void.

**Supplementary Table S5** - Percentage hyperactivation in both low motile and high motile sperm subpopulations after treatment with HTF, CAP, 20 nM, 100 nM and 1  $\mu$ M dopamine (mean $\pm$ SD) (n=20).

	HTF		CAP		20 nM DOPA		100 nM DOPA		1 $\mu$ M DOPA		ANOVA
	Mean $\pm$ SD	SP <i>p</i>	Mean $\pm$ SD	SP <i>p</i>	Mean $\pm$ SD	SP <i>p</i>	Mean $\pm$ SD	SP <i>p</i>	Mean $\pm$ SD	SP <i>p</i>	
<b>5 minutes</b>											
<b>HM</b>	11.0 $\pm$ 15.0 <sup>a</sup>	0.544	19.7 $\pm$ 18.0 <sup>a</sup>	0.054	35.7 $\pm$ 21.9 <sup>**b</sup>	<b>0.004</b>	31.3 $\pm$ 15.4 <sup>b</sup>	0.158	35.2 $\pm$ 21.0 <sup>*b</sup>	<b>0.028</b>	< <b>0.001</b>
<b>LM</b>	6.8 $\pm$ 7.4 <sup>a</sup>		11.9 $\pm$ 12.2 <sup>ac</sup>		19.0 $\pm$ 15.0 <sup>**bc</sup>		24.0 $\pm$ 16.9 <sup>b</sup>		22.1 $\pm$ 15.1 <sup>*b</sup>		< <b>0.001</b>
<b>15 minutes</b>											
<b>HM</b>	17.8 $\pm$ 13.7 <sup>**a</sup>	<b>0.003</b>	29.4 $\pm$ 17.3 <sup>**b</sup>	<b>0.006</b>	35.1 $\pm$ 20.4 <sup>**b</sup>	<b>0.009</b>	31.3 $\pm$ 12.5 <sup>*b</sup>	<b>0.028</b>	39.5 $\pm$ 18.2 <sup>*b</sup>	<b>0.015</b>	<b>0.001</b>
<b>LM</b>	6.9 $\pm$ 6.8 <sup>**a</sup>		15.7 $\pm$ 11.9 <sup>**b</sup>		18.9 $\pm$ 12.6 <sup>**bc</sup>		21.6 $\pm$ 14.2 <sup>*bc</sup>		26.7 $\pm$ 13.4 <sup>*c</sup>		< <b>0.001</b>
<b>30 minutes</b>											
<b>HM</b>	23.1 $\pm$ 14.0 <sup>***</sup>	< <b>0.001</b>	33.6 $\pm$ 19.4 <sup>***</sup>	< <b>0.001</b>	33.6 $\pm$ 18.4 <sup>*</sup>	<b>0.010</b>	33.6 $\pm$ 15.6 <sup>*</sup>	<b>0.011</b>	37.9 $\pm$ 19.2	0.060	0.105
<b>LM</b>	6.6 $\pm$ 9.3 <sup>***a</sup>		13.7 $\pm$ 12.0 <sup>***ab</sup>		20.5 $\pm$ 11.7 <sup>*bc</sup>		21.4 $\pm$ 13.3 <sup>*bc</sup>		24.5 $\pm$ 15.3 <sup>c</sup>		< <b>0.001</b>
<b>45 minutes</b>											
<b>HM</b>	12.0 $\pm$ 13.1 <sup>a</sup>	0.146	24.8 $\pm$ 15.6 <sup>**ab</sup>	<b>0.002</b>	20.8 $\pm$ 16.0 <sup>ab</sup>	0.329	24.2 $\pm$ 16.8 <sup>b</sup>	0.119	31.8 $\pm$ 16.3 <sup>b</sup>	0.056	<b>0.003</b>
<b>LM</b>	5.9 $\pm$ 8.0 <sup>a</sup>		10.3 $\pm$ 10.9 <sup>**ab</sup>		16.7 $\pm$ 12.1 <sup>bc</sup>		18.2 $\pm$ 15.8 <sup>bc</sup>		21.7 $\pm$ 16.1 <sup>c</sup>		<b>0.001</b>
<b>60 minutes</b>											
<b>HM</b>	9.7 $\pm$ 12.1 <sup>a</sup>	0.078	22.2 $\pm$ 12.1 <sup>**ab</sup>	<b>0.001</b>	21.2 $\pm$ 16.0 <sup>b</sup>	0.078	18.0 $\pm$ 17.1 <sup>ab</sup>	0.430	23.4 $\pm$ 18.0 <sup>b</sup>	0.067	<b>0.041</b>
<b>LM</b>	4.7 $\pm$ 8.9		9.6 $\pm$ 10.7 <sup>**</sup>		14.3 $\pm$ 12.0		14.4 $\pm$ 14.9		13.0 $\pm$ 12.5		0.056

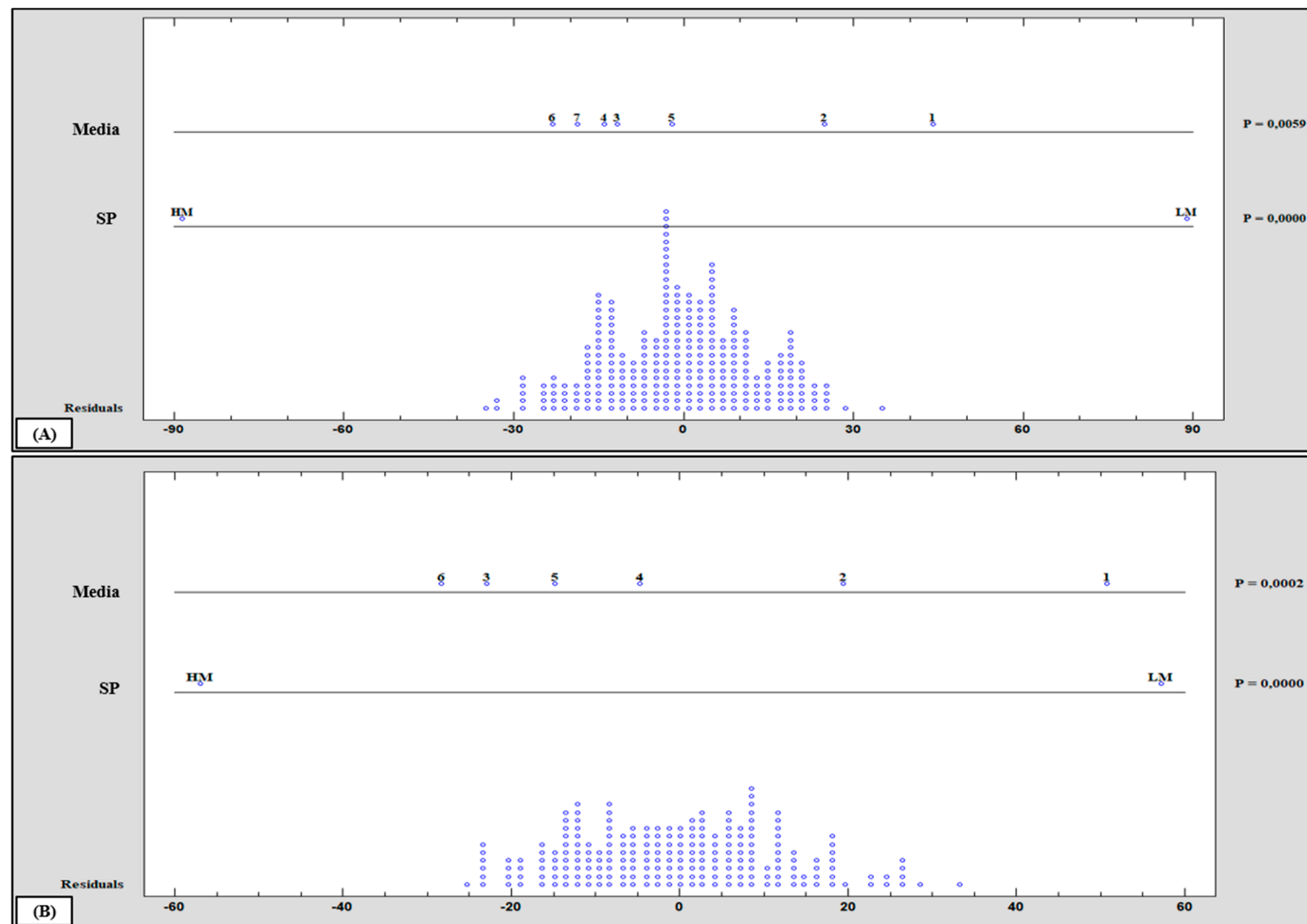
CAP, capacitating-HTF; DOPA, dopamine; HM, high motile; HTF, human tubal fluid; LM, low motile; min, minutes; SD, standard deviation and SP *p*, t test between subpopulations. <sup>a, b, c, d</sup> Values labelled with different superscript letters in the same row were significantly different between the various media for individual subpopulations and time points. One-way ANOVA for parametric distributions or Kruskal-Wallis test for non-parametric distributions was used. Values labelled with an asterisks in the same column were significantly different between the HM and LM subpopulations for individual media and time points (\**p* < 0.05, \*\**p* < 0.01 and \*\*\**p* < 0.001). Student's t-test was used or the Mann-Whitney test when normal distribution was void.

**Supplementary Table S6** - Percentage hyperactivation in both low motile and high motile sperm subpopulations after treatment with HTF, CAP, 50 ng/mL, 100 ng/mL, 250 ng/mL and 500 ng/mL prolactin at 5, 15, 30, 45 and 60 minutes (mean±SD) (n=20).

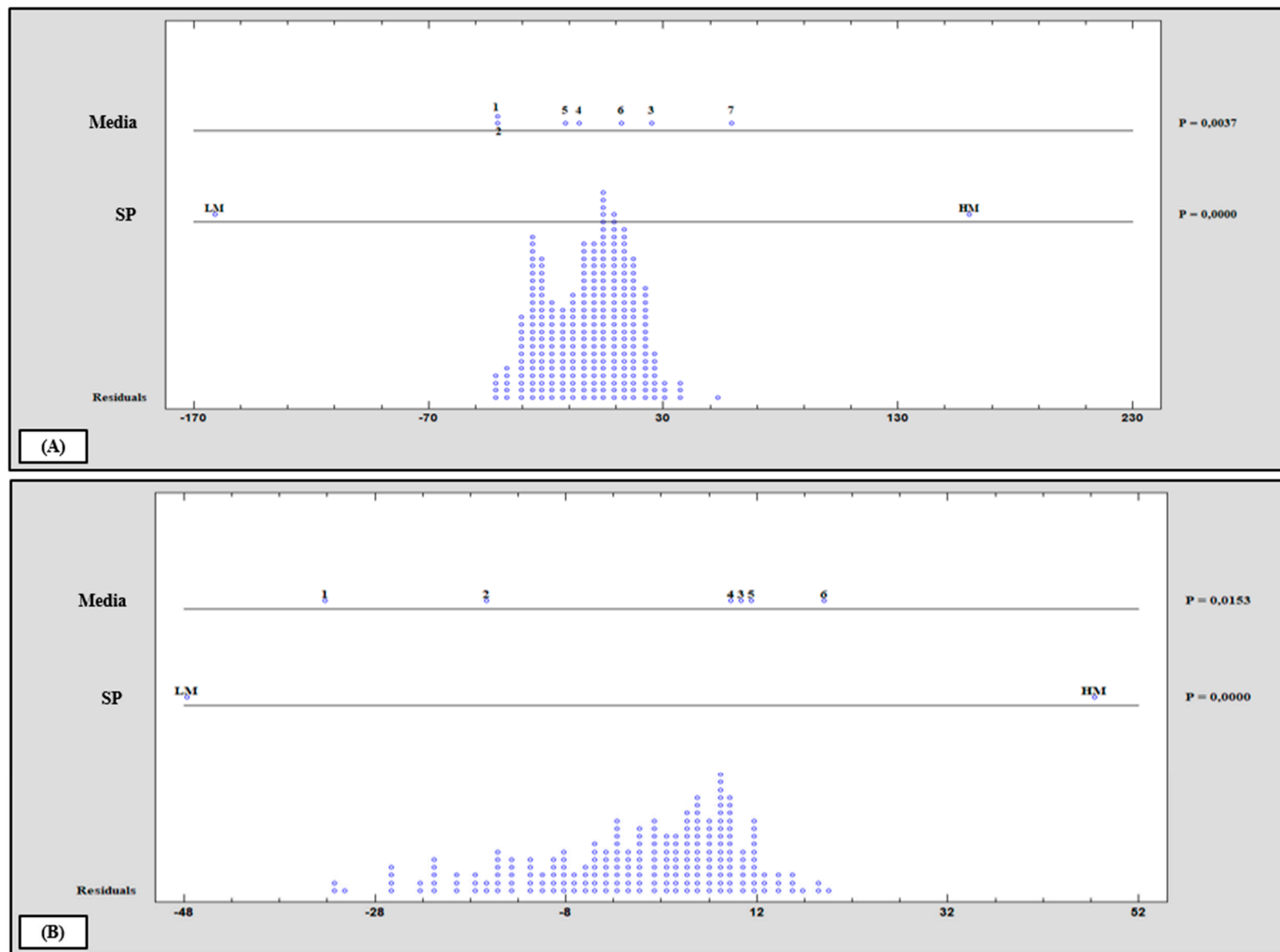
HTF				CAP		50 ng/mL PRL		100 ng/mL PRL		250 ng/mL PRL		500 ng/mL PRL		ANOVA					
Mean ± SD		SP	p	Mean ± SD		SP	p	Mean ± SD		SP	p	Mean ± SD			SP	p			
5 minutes																			
HM	18.9 ± 13.7***		<0.001	29.6 ± 17.4**		0.003	26.4 ± 18.1		0.451	29.7 ± 18.3		0.354	28.0 ± 19.1		0.132	34.0 ± 18.6*		0.040	0.091
LM	7.9 ± 9.5*** <sup>a</sup>			15.0 ± 13.8** <sup>ab</sup>			22.4 ± 18.1 <sup>b</sup>			22.0 ± 17.6 <sup>b</sup>			18.9 ± 18.7 <sup>b</sup>			23.6 ± 15.3* <sup>b</sup>			0.005
15 minutes																			
HM	22.3 ± 8.2** <sup>a</sup>		0.001	34.5 ± 14.8** <sup>b</sup>		0.003	36.8 ± 19.7 <sup>b</sup>		0.155	32.2 ± 18.2 <sup>b</sup>		0.967	33.3 ± 18.9 <sup>b</sup>		0.302	33.9 ± 17.0 <sup>b</sup>		0.318	0.029
LM	11.5 ± 11.6** <sup>a</sup>			21.1 ± 14.5** <sup>b</sup>			28.9 ± 18.0 <sup>b</sup>			32.5 ± 21.0 <sup>b</sup>			26.7 ± 20.1 <sup>b</sup>			29.1 ± 16.4 <sup>b</sup>			0.001
30 minutes																			
HM	21.3 ± 10.7*** <sup>a</sup>		<0.001	35.3 ± 17.7** <sup>ab</sup>		0.001	38.2 ± 18.5** <sup>b</sup>		0.009	33.6 ± 18.2 <sup>b</sup>		0.380	34.4 ± 21.6 <sup>ab</sup>		0.410	32.9 ± 17.5 <sup>b</sup>		0.155	0.026
LM	9.5 ± 10.1*** <sup>a</sup>			19.6 ± 13.8** <sup>b</sup>			24.9 ± 15.6** <sup>bc</sup>			28.8 ± 19.2 <sup>bc</sup>			29.7 ± 17.6 <sup>c</sup>			25.4 ± 18.3 <sup>bc</sup>			<0.001
45 minutes																			
HM	16.1 ± 10.7* <sup>a</sup>		0.014	26.5 ± 15.9* <sup>b</sup>		0.012	32.5 ± 16.8* <sup>b</sup>		0.017	29.0 ± 14.4 <sup>b</sup>		0.642	35.1 ± 18.0* <sup>b</sup>		0.017	29.4 ± 15.3 <sup>b</sup>		0.188	0.001
LM	8.7 ± 10.3* <sup>a</sup>			16.1 ± 11.8* <sup>ab</sup>			21.3 ± 14.8* <sup>b</sup>			25.6 ± 17.7 <sup>b</sup>			23.9 ± 12.9* <sup>b</sup>			23.6 ± 14.6 <sup>b</sup>			<0.001
60 minutes																			
HM	17.7 ± 11.9** <sup>a</sup>		0.001	25.4 ± 15.4* <sup>ab</sup>		0.015	31.0 ± 16.6* <sup>ab</sup>		0.010	26.0 ± 12.9 <sup>ab</sup>		0.692	30.7 ± 19.6** <sup>b</sup>		0.008	28.8 ± 18.0* <sup>ab</sup>		0.016	0.049
LM	7.0 ± 9.5** <sup>a</sup>			14.8 ± 10.8* <sup>b</sup>			19.8 ± 12.3* <sup>b</sup>			24.4 ± 15.0 <sup>b</sup>			17.1 ± 14.6** <sup>b</sup>			17.9 ± 11.9* <sup>b</sup>			<0.001

CAP, capacitating-HTF; HM, high motile; HTF, human tubal fluid; LM, low motile; min, minutes; PRL, prolactin; SD, standard deviation and SP *p*, t test between subpopulations. <sup>a, b, c, d</sup> Values labelled with different superscript letters in the same row were significantly different between the various media for individual subpopulations and time points. One-way ANOVA for parametric distributions or Kruskal-Wallis test for non-parametric distributions was used. Values labelled with an asterisks in the same column were significantly different between the HM and LM subpopulations for individual media and time points (\**p* < 0.05, \*\**p* < 0.01 and \*\*\**p* < 0.001). Student's t-test was used or the Mann-Whitney test when normal distribution was void.

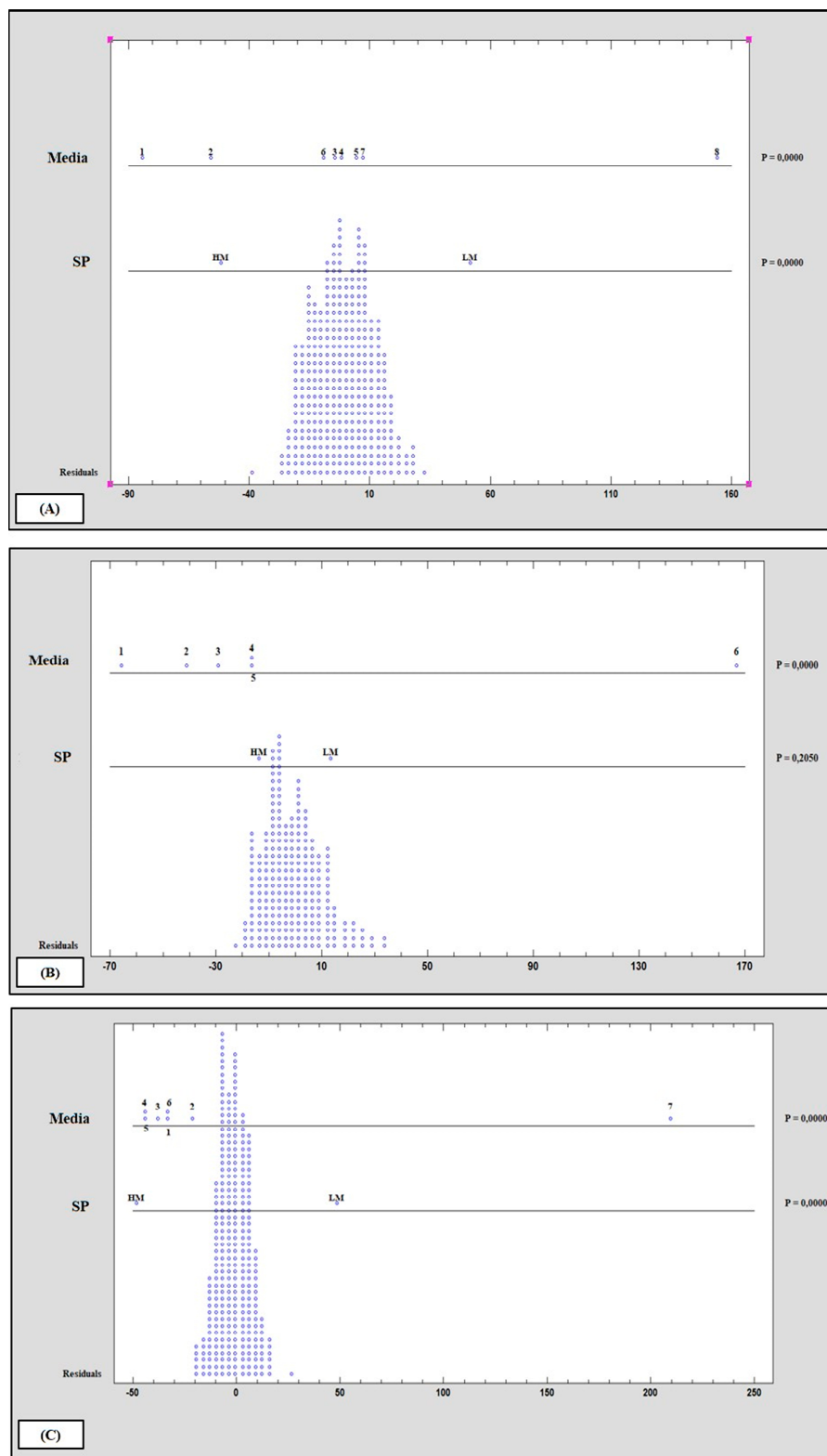




**Supplementary Figure S1.** Multifactorial graphical ANOVA of the pooled data from the high motile (HM) and low motile (LM) sperm subpopulations percentage reactive oxygen species (ROS) positive spermatozoa. **(A)** Multifactorial graphical ANOVA displaying the significant interactions of subpopulations and media on ROS percentages after treatment with HTF (1), CAP (2), HD-C (3), 1.98  $\mu$ M PRG (4), 3.96  $\mu$ M PRG (5), 19.8  $\mu$ M PRG (6) and 11 mM MYO (7). **(B)** Multifactorial graphical ANOVA displaying the significant interactions of subpopulations and media on ROS percentages after treatment with HTF (1), CAP (2), 50 ng/mL PRL (3) 100 ng/mL PRL (4), 250 ng/mL PRL (5) and 500 ng/mL PRL (6) The Graphical ANOVA plot shows the effects of each factor scaled so that they can be compared to the variability of the residuals. For each factor, the deviations of the adjusted level means from the estimated grand mean are displayed. Any factor that shows considerably larger variability than the residuals is likely to be an important factor. Student-Newman-Keuls was used for the post hoc test. ANOVA, analysis of variance; CAP, capacitating-HTF; HD-C, HD capacitation medium; HM, high motile subpopulation; HTF, human tubal fluid; LM, low motile subpopulation; MYO, myo-inositol; PRG, progesterone; PRL, prolactin.; ROS, positive reactive oxygen species



**Supplementary Figure S2.** Multifactorial graphical ANOVA of the pooled data from the high motile (HM) and low motile (LM) sperm subpopulations percentage intact mitochondrial membrane potential (MMP). **(A)** Multifactorial graphical ANOVA displaying the significant interactions of subpopulations and media on MMP intactness percentages after treatment with HTF (1), CAP (2), HD-C (3), 1.98  $\mu$ M PRG (4), 3.96  $\mu$ M PRG (5), 19.8  $\mu$ M PRG (6) and 11 mM MYO (7). **(B)** Multifactorial graphical ANOVA displaying the significant interactions of subpopulations and media on MMP intactness percentages after treatment with HTF (1), CAP (2), 50 ng/mL PRL (3) 100 ng/mL PRL (4), 250 ng/mL PRL (5) and 500 ng/mL PRL (6). The Graphical ANOVA plot shows the effects of each factor scaled so that they can be compared to the variability of the residuals. For each factor, the deviations of the adjusted level means from the estimated grand mean are displayed. Any factor that shows considerably larger variability than the residuals is likely to be an important factor. Student-Newman-Keuls was used for the post hoc test. ANOVA, analysis of variance; CAP, capacitating-HTF; HD-C, HD capacitation medium; HM, high motile subpopulation; HTF, human tubal fluid; LM, low motile subpopulation; MMP, mitochondrial membrane intactness; MYO, myo-inositol; PRG, progesterone; PRL, prolactin and SP, subpopulations.



**Supplementary Figure S3.** Multifactorial graphical ANOVA of the pooled data from the high motile (HM) and low motile (LM) sperm subpopulations percentage acrosome reaction (AR). **(A)** Multifactorial graphical ANOVA displaying the significant interactions of subpopulations and media on AR percentages after treatment with HTF (1), CAP (2), HD-C (3), 1.98  $\mu$ M PRG (4), 3.96  $\mu$ M PRG (5), 19.8  $\mu$ M PRG (6), 11 mM MYO (7) and Ca-ionophore (8). **(B)** Multifactorial graphical ANOVA displaying the significant interactions of subpopulations and media on AR percentages after treatment with HTF (1), CAP (2), 20 nM DOPA (3) 100 nM DOPA (4), 1  $\mu$ M DOPA (5) and Ca-ionophore (6). **(C)** Multifactorial graphical ANOVA displaying the significant interactions of subpopulations and media on AR percentages after treatment with HTF (1), CAP (2), 50 ng/mL PRL (3) 100 ng/mL PRL (4), 250 ng/mL PRL (5), 500 ng/mL PRL (6) and Ca-ionophore (7). The Graphical ANOVA plot shows the effects of each factor scaled so that they can be compared to the variability of the residuals. For each factor, the deviations of the adjusted level means from the estimated grand mean are displayed. Any factor that shows considerably larger variability than the residuals is likely to be an important factor. Student-Newman-Keuls was used for the post hoc test. ANOVA, analysis of variance; AR, acrosome reaction; CAP, capacitating-HTF; Ca-ionophore, calcium ionophore; DOPA, dopamine; HD-C, HD capacitation medium; HM, high motile subpopulation; HTF, human tubal fluid; LM, low motile subpopulation; MYO, myo-inositol; PRG, progesterone; PRL, prolactin and SP, subpopulations.