Supplemental S1: Detailed descriptive statistics + statistical data for all determined variables

Table S1

Descriptive Statistics and statistical results of hematological variables

	CON		aCOV T0		aCOV T2		aCOV T5		aCOV T10		aCOV T30	
	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
Neutrophil Granulocytes [10^9/L]	57.02	14.86	74.91	12.18	78.28	8.05	73.97	10.69	78.06	9.50	58.76	16.00
Ferritin [µg/L]	-	-	1555.36	3159.39	1139.44	948.76	966.72	852.90	1132.22	1425.73	1789.17	2062.31
D-Dimers [mg/IU]	1.03	3.54	2.33	4.95	3.46	6.36	5.83	7.81	4.03	5.50	1.89	2.51
Erythrocytes [10^{12}/L]	4.49	0.63	4.06	0.72	3.77	0.69	4.10	0.74	3.81	0.67	3.90	0.80
Leukocytes [10^9/L]	6.21	2.72	7.88	9.75	6.94	3.12	8.36	3.04	10.50	3.90	10.92	14.71
MCV [fl]	90.22	5.76	90.18	6.76	90.36	7.96	88.25	6.83	90.75	4.97	93.55	6.54
MCHC [g/dL]	34.39	1.25	34.07	0.93	33.60	1.17	33.96	0.97	33.67	0.56	33.30	0.99
Hematocrit [%]	40.00	5.00	36.00	6.00	34.00	6.00	36.00	6.00	35.00	7.00	36.00	7.00
Hemoglobin [g/dL]	13.89	1.75	12.39	2.00	11.38	1.95	12.25	2.24	11.70	2.45	12.08	2.28

MCH [pg]	31.05	2.62	30.73	2.45	30.33	2.65	29.96	2.33	30.57	1.86	31.15	2.41
Thrombocytes [10^9/L]	236.36	63.16	192.17	76.93	221.56	75.78	283.97	123.16	207.45	93.58	235.19	75.26
Relative Eosinophils [%]	2.08	1.78	0.30	0.68	0.75	1.24	1.09	1.23	0.70	0.72	2.89	2.08
CRP [mg/L]	-	-	95.52	71.70	70.04	64.25	19.89	21.34	23.12	32.26	19.31	25.43
Fibrinogen [g/L]	3.45	0.93	4.51	1.19	4.26	1.77	3.06	1.58	4.10	1.97	3.36	1.48
RDW [%]	13.37	1.30	13.87	1.37	14.06	1.50	13.67	2.44	15.18	3.35	15.26	2.46

Modeling of time courses: blood parameters

Model performance: robust lmer

		$R^2_{conditional}$	$R^2_{marginal}$	ICC	RMSE	σ
Neutrophil Granulocytes	M0	0.35	0.00	0.35	9.3	9.75
	linear	0.49	0.2	0.35	8.64	8.87
	quadratic	0.46	0.23	0.3	8.91	9.12
	cubic	0.45	0.23	0.29	8.97	9.22
Ferritin	M0	0.91	0.00	0.91	1334.69	250.83
	linear	0.92	0.00	0.92	1332.26	237.67
	quadratic	0.92	0.01	0.92	1313.69	236.43
	cubic	0.92	0.01	0.92	1314.07	239.62
D-Dimers	M0	0.71	0.00	0.71	3.36	0.6
	linear	0.7	0.00	0.7	3.36	0.6
	quadratic	0.7	0.00	0.7	3.36	0.6
	cubic	0.67	0.05	0.65	3.33	0.67
Erythrocytes	M0	0.76	0.00	0.76	0.33	0.35
	linear	0.75	0.00	0.75	0.32	0.36
	quadratic	0.76	0.01	0.75	0.32	0.36
	cubic	0.76	0.01	0.76	0.32	0.35
Leukocytes	M0	0.21	0.00	0.21	2.68	2.79
	linear	0.25	0.02	0.24	2.62	2.7
	quadratic	0.43	0.11	0.36	2.26	2.39
	cubic	0.42	0.11	0.35	2.26	2.42
MCV	M0	0.93	0.00	0.93	1.95	1.6
	linear	0.93	0.01	0.93	1.88	1.62
	quadratic	0.93	0.01	0.93	1.86	1.67
	cubic	0.93	0.01	0.93	1.87	1.62

MCHC	M0	0.63	0.00	0.63	0.63	0.59
	linear	0.64	0.03	0.63	0.62	0.57
	quadratic	0.65	0.03	0.64	0.61	0.57
	cubic	0.66	0.03	0.65	0.6	0.57
Hematocrit	M0	0.73	0.00	0.73	0.03	0.03
	linear	0.72	0.00	0.72	0.03	0.03
	quadratic	0.72	0.00	0.72	0.03	0.03
	cubic	0.73	0	0.72	0.03	0.03
Hemoglobin	M0	0.78	0.00	0.78	0.9	0.93
	linear	0.77	0.00	0.77	0.89	0.94
	quadratic	0.77	0.00	0.77	0.89	0.95
	cubic	0.77	0.01	0.77	0.89	0.96
MCH	M0	0.93	0.00	0.93	0.68	0.59
	linear	0.94	0.00	0.94	0.68	0.58
	quadratic	0.94	0.00	0.94	0.65	0.59
	cubic	0.95	0.01	0.95	0.64	0.52
Thrombocytes	M0	0.24	0.0	0.24	75.53	77.59
	linear	0.37	0.03	0.35	69	69.45
	quadratic	0.43	0.07	0.38	65.15	66.22
	cubic	0.51	0.13	0.43	57.59	62.67
Relative Eosinophils	M0	0	0.00	0.00	1.44	0.93
	linear	0.54	0.54	0.00	1.17	0.76
	quadratic	0.55	0.55	0.00	1.17	0.76
	cubic	0.55	0.55	0	1.15	0.78
CRP	M0	0	0.00	0.00	63.18	50.04
	linear	0.25	0.11	0.15	53.2	45.82

	quadratic	0.59	0.28	0.43	40.67	37.11
	cubic	0.63	0.32	0.46	39.6	34.91
Fibrinogen	M0	0.38	0.00	0.38	1.02	1.17
	linear	0.43	0.03	0.41	0.98	1.14
	quadratic	0.62	0.12	0.56	0.85	0.92
	cubic	0.62	0.16	0.55	0.76	0.92
RDW	M0	0.69	0.00	0.69	1.42	0.77
	linear	0.69	0.04	0.68	1.36	0.78
	quadratic	0.7	0.04	0.69	1.36	0.77
	cubic	0.76	0.07	0.74	1.33	0.69

Note. Model fit robust mixed effects regression models. M0: Intercept-only-Model

Modeling over time

		Model 1				***Model 2***				***Model 3***			
		b	**SE**	***t***	***p***	***b***	**SE**	***t***	***p***	***b***	**SE**	***t***	***p***
Neutrophil Granulocytes	intercept	76.83	1.52	5.41	**<.001**	76.14	1.64	46.46	< .001	76.29	1.73	44.17	<.001
	time	-.57	.10	-5.70	**<.001**	-0.04	0.47	-0.09	.925	-0.33	1.17	-0.28	.782
	time²					-0.02	0.02	-1.19	.238	0.03	0.17	0.16	.871
	time³										0.00	-0.27	.786
Ferritin	intercept	927.16	139.50	6.65	<.001	989.97	145.14	6.82	**< .001**	1007.19	149.96	6.72	<.001
	time	-4.55	4.18	-1.09	.280	-31.63	12.93	-2.45	**<.050**	-46.87	35.22	-1.33	.188
	time²					1.08	0.44	2.47	**<.050**	3.33	4.61	0.72	.472
	time³									-0.06	0.12	-0.50	.620

D-Dimers	intercept	1.12	.16	6.99	<.001	1.00	0.17	6.00	< .001	0.98	0.17	5.65	**<.001**
	time	.00	.01	.48	.631	0.10	0.03	3.49	< .001	0.15	0.08	1.89	**.062**
	time²					0.00	0.00	-3.52	< .001	-0.01	0.01	-0.97	**.335**
	time³									0.00	0.00	0.64	**.522**
Erythrocytes	intercept	4.10	.11	39.03	**<.001**	4.09	0.11	37.69	< .001	4.06	0.11	36.84	<.001
	time	-.01	.00	-1.38	**.172**	0.00	0.02	0.24	.808	0.06	0.04	1.35	.181
	time²					0.00	0.00	-0.56	.577	-0.01	0.01	-1.42	.158
	time³									0.00	0.00	1.38	.171
Leukocytes	intercept	7.05	.39	18.15	<.001	6.34	0.43	14.65	**< .001**	6.40	0.46	14.07	<.001
	time	.05	.03	1.73	.088	0.48	0.11	4.39	**< .001**	0.37	0.27	1.36	.179
	time²					-0.01	0.00	-4.08	**< .001**	0.00	0.04	0.10	.919
	time³									0.00	0.00	-0.47	.639
MCV	intercept	89.68	.96	93.88	<.001	89.83	0.96	93.38	**< .001**	89.94	0.96	93.27	< .001
	time	.05	.02	2.96	.004	-0.04	0.08	-0.50	**.622**	-0.28	0.19	-1.48	.143
	time²					0.00	0.00	1.17	**.245**	0.04	0.03	1.52	.133
	time³									0.00	0.00	-1.42	.160
MCHC	intercept	33.90	.13	254.20	<.001	33.96	0.14	238.87	< .001	33.98	0.15	232.48	**<.001**
	time	-.02	.01	-2.73	.008	-0.05	0.03	-1.81	.074	-0.10	0.07	-1.57	**.119**
	time²					0.00	0.00	1.27	.209	0.01	0.01	1.00	**.321**
	time³									0.00	0.00	-0.88	**.382**
Hematocrit	intercept	.37	.01	44.07	<.001	0.37	0.01	42.42	< .001	0.37	0.01	41.17	**< .001**
	time	.00	.00	-.55	.584	0.00	0.00	0.09	.929	0.00	0.00	1.09	**.278**
	time²					0.00	0.00	-0.22	.830	0.00	0.00	-1.17	**.246**
	time³									0.00	0.00	1.15	**.252**
Hemoglobin	intercept	12.53	.29	43.08	**<.001**	12.53	0.30	41.81	< .001	12.48	0.31	40.83	<.001
	time	-.01	.01	-1.15	**.253**	-0.01	0.05	-0.14	.891	0.08	0.11	0.71	.482
	time²					0.00	0.00	-0.12	.908	-0.01	0.02	-0.86	.394

	time^3									0.00	0.00	0.85	.396
MCH	intercept	3.35	.35	86.44	<.001	30.45	0.36	85.62	< .001	30.51	0.36	85.91	**<.001**
	time	.01	.01	.97	.335	-0.05	0.03	-1.90	.061	-0.20	0.06	-3.36	**.001**
	time²					0.00	0.00	2.18	<.050	0.03	0.01	2.97	**.004**
	time^3									0.00	0.00	-2.77	**.007**
Thrombocytes	intercept	208.54	11.35	18.38	<.001	195.82	12.28	15.94	< .001	182.29	12.65	14.41	**<.001**
	time	1.47	.69	2.11	.038	9.37	3.07	3.05	< .010	34.71	7.11	4.88	**<.001**
	time²					-0.26	0.10	-2.61	<. 050	-4.33	1.04	-4.16	**<.001**
	time^3									0.11	0.03	3.93	**<.001**
Relative Eosinophils	intercept	.25	.09	2.74	.008	0.28	0.11	2.49	.015	0.21	0.12	1.68	**.098**
	time	.09	.01	1.54	<.001	0.07	0.04	1.86	.067	0.22	0.09	2.38	**.020**
	time²					0.00	0.00	0.48	.630	-0.02	0.01	-1.71	**.091**
	time^3									0.00	0.00	1.75	**.084**
CRP	intercept	59.63	5.58	1.69	<.001	83.03	6.91	12.02	< .001	91.23	7.12	12.82	**<.001**
	time	-2.50	.56	-4.45	<.001	-12.51	1.41	-8.85	< .001	-21.74	3.38	-6.42	**<.001**
	time²					0.34	0.05	7.15	< .001	1.67	0.46	3.64	**<.001**
	time^3									-0.03	0.01	-2.90	**.005**
Fibrinogen	intercept	4.03	.31	13.01	<.001	4.44	0.33	13.33	< .001	4.78	0.36	13.34	**<.001**
	time	-.03	.02	-1.47	.150	-0.23	0.07	-3.41	<.010	-0.61	0.17	-3.59	**.001**
	time²					0.01	0.00	3.09	<.010	0.06	0.02	2.79	**.009**
	time^3									0.00	0.00	-2.53	**.016**
RDW	intercept	13.63	.20	68.34	<.001	13.68	0.21	66.22	< .001	13.79	0.21	66.20	**<.001**
	time	.03	.01	3.34	.001	0.00	0.04	-0.10	.917	-0.23	0.08	-2.85	**.005**
	time²					0.00	0.00	0.86	.392	0.04	0.01	3.28	**.002**
	time^3									0.00	0.00	-3.23	**.002**

Note. Parameter estimation by robust linear mixed effects regression model (Koller, M. robustlmm: An R Package for Robust Estimation of Linear Mixed-Effects Models. J. Stat. Softw. 2016, 75, 1–24. https://doi.org/10.18637/jss.v075.i06.). Model 1 linear prediction of concentration of blood parameter by time (0, 2, 5, 10, 30). Model quadratic prediction of concentration of blood parameters by time (0, 2, 5, 10, 30). Model of cubic prediction of concentration of blood parameters by time (0, 2, 5, 10, 30).

Blood parameters: CON vs. EG

Overall statistics: sign. result suggests a significant difference between trimmed means across control group and different time points (aCOV)

Neutrophils	F(5, 26.46) = 9.72, ξ = 0.67 [0.47; 0.87]	$p < .001$
Erythrocytes	F(5, 27.85) = 3.09, ξ = 0.45 [0.25; 0.64]	$p < .050$
Leukocytes	F(5, 28.41) = 2.87, ξ = 0.55 [0.31; 0.92]	$p < .050$
MCV	F(5, 28.39) = 0.941, ξ = 0.50 [0.18; 0.68]	$p = .470$
MCHC	F(5, 29.03) = 3.32, ξ = 0.53 [0.29; 0.77]	$p <.050$
Hemoglobin	F(5, 27.6) = 6.08, ξ = 0.5 [0.28; 0.67]	$p <.001$
Hematocrit	F(5, 27.87) = 3.87, ξ = 0.47 [0.27; 0.67]	$p <.010$
MCH	F(5, 28.56) = 1.11, ξ = 0.38 [0.19; 0.6]	$p = .376$
Thrombocytes	F(5, 8.89) = 3.92, ξ = 0.47 [0.22; 0.78]	$p < .010$
Eosinophils	F(5, 21.43) = 15.38, ξ = 0.7 [0.45; 1.09]	$p < .001$
RDW	F(5, 27.74) = 2.55, ξ = 0.53 [0.27; 0.91]	$p = .051$,
Fibrinogen	F(5, 12.61) = 2.55, ξ = 0.61 [0.34; 0.99]	$p = .083$
D-Dimers F(5, 24.19) = 4.06, ξ = 1.06 [0.39;3],		$p <.010$

(https://doi.org/10.3758/s13428-019-01246-w; effect size= ξ [95%-bootstrap CI]: 0.1 small, 0.3 medium, 0.5 large). Overall statistic calculated using WRS2 (Mair, & Wilcox)

		b	*SE*	95%-CI-low	95%-CI-high	*t*	df_{error}	*p*
Neutrophil Granulocytes	(Intercept)	59.23	2.24	54.79	63.67	26.39	127	<.001
	CON_vs_aCOV T0	17.22	3.02	11.25	23.20	5.70	127	<.001
	CON_vs_aCOV T2	19.05	3.66	11.80	26.30	5.20	127	<.001
	CON_vs_aCOV T5	14.74	3.60	7.61	21.87	4.09	127	<.001
	CON_vs_aCOV T10	18.83	5.15	8.63	29.03	3.65	127	<.001
	CON_vs_aCOV T30	-3.31	4.37	-11.96	5.33	-0.76	127	.45
Erythrocytes	(Intercept)	4.49	0.12	4.26	4.73	37.47	147	<.001
	CON_vs_aCOV T0	-0.38	0.16	-0.70	-0.07	-2.40	147	.02
	CON_vs_aCOV T2	-0.72	0.19	-1.10	-0.35	-3.79	147	<.001
	CON_vs_aCOV T5	-0.39	0.18	-0.75	-0.04	-2.20	147	.03
	CON_vs_aCOV T10	-0.68	0.26	-1.19	-0.18	-2.66	147	.01
	CON_vs_aCOV T30	-0.60	0.21	-1.01	-0.18	-2.86	147	<.001
Leukocytes	(Intercept)	6.10	0.53	5.05	7.15	11.52	147	<.001
	CON_vs_aCOV T0	0.10	0.71	-1.30	1.50	0.14	147	.89
	CON_vs_aCOV T2	0.42	0.85	-1.26	2.09	0.49	147	.62
	CON_vs_aCOV T5	2.25	0.79	0.70	3.81	2.86	147	<.001
	CON_vs_aCOV T10	3.52	1.17	1.20	5.83	3.00	147	<.001
	CON_vs_aCOV T30	1.28	0.93	-0.55	3.12	1.38	147	.17
MCV	(Intercept)	89.94	1.31	87.36	92.53	68.69	147	<.001
	CON_vs_aCOV T0	-0.48	1.74	-3.93	2.96	-0.28	147	.78
	CON_vs_aCOV T2	-1.38	2.14	-5.61	2.85	-0.65	147	.52
	CON_vs_aCOV T5	-2.08	1.96	-5.96	1.80	-1.06	147	.29
	CON_vs_aCOV T10	0.81	2.78	-4.68	6.29	0.29	147	.77
	CON_vs_aCOV T30	3.44	2.32	-1.15	8.03	1.48	147	.14
MCHC	(Intercept)	34.60	0.18	34.24	34.96	189.62	147	<.001
	CON_vs_aCOV T0	-0.62	0.24	-1.09	-0.15	-2.59	147	.01
	CON_vs_aCOV T2	-0.96	0.29	-1.53	-0.39	-3.31	147	<.001

	CON_vs_aCOV T5	-0.63	0.27	-1.16	-0.11	-2.37	147	.02
	CON_vs_aCOV T10	-0.93	0.38	-1.68	-0.18	-2.46	147	.02
	CON_vs_aCOV T30	-1.31	0.32	-1.94	-0.69	-4.16	147	<.001
Hematocrit	(Intercept)	0.40	0.01	0.38	0.43	34.88	147	<.001
	CON_vs_aCOV T0	-0.03	0.02	-0.07	0.00	-2.25	147	.03
	CON_vs_aCOV T2	-0.06	0.02	-0.10	-0.03	-3.49	147	<.001
	CON_vs_aCOV T5	-0.04	0.02	-0.08	-0.01	-2.50	147	.01
	CON_vs_aCOV T10	-0.06	0.02	-0.11	-0.01	-2.24	147	.03
	CON_vs_aCOV T30	-0.04	0.02	-0.08	0.00	-1.85	147	.07
Hemoglobin	(Intercept)	13.97	0.40	13.17	14.77	34.51	147	<.001
	CON_vs_aCOV T0	-1.41	0.54	-2.47	-0.35	-2.64	147	.01
	CON_vs_aCOV T2	-2.59	0.64	-3.86	-1.32	-4.03	147	<.001
	CON_vs_aCOV T5	-1.71	0.60	-2.91	-0.52	-2.83	147	.01
	CON_vs_aCOV T10	-2.27	0.87	-3.98	-0.56	-2.62	147	.01
	CON_vs_aCOV T30	-1.83	0.71	-3.23	-0.43	-2.58	147	.01
MCH	(Intercept)	31.04	0.46	30.14	31.95	67.93	147	<.001
	CON_vs_aCOV T0	-0.49	0.60	-1.67	0.69	-0.82	147	.42
	CON_vs_aCOV T2	-1.04	0.72	-2.46	0.37	-1.45	147	.15
	CON_vs_aCOV T5	-1.09	0.67	-2.41	0.23	-1.63	147	.10
	CON_vs_aCOV T10	-0.47	0.94	-2.34	1.39	-0.50	147	.62
	CON_vs_aCOV T30	0.04	0.78	-1.49	1.58	0.06	147	.96
Thrombocytes	(Intercept)	236.14	17.01	202.51	269.76	13.88	147	<.001
	CON_vs_aCOV T0	-48.79	22.61	-93.47	-4.10	-2.16	147	.03
	CON_vs_aCOV T2	-14.83	27.07	-68.33	38.66	-0.55	147	.58
	CON_vs_aCOV T5	14.22	26.44	-38.03	66.46	0.54	147	.59
	CON_vs_aCOV T10	-29.58	36.38	-101.47	42.32	-0.81	147	.42
	CON_vs_aCOV T30	-0.22	29.77	-59.05	58.61	-0.01	147	.99
Relative Eosinophils	(Intercept)	1.65	0.15	1.35	1.95	10.90	127	<.001

	CON_vs_aCOV T0	-1.44	0.20	-1.84	-1.05	-7.17	127	<.001
	CON_vs_aCOV T2	-1.39	0.26	-1.91	-0.87	-5.30	127	<.001
	CON_vs_aCOV T5	-0.89	0.24	-1.37	-0.40	-3.64	127	<.001
	CON_vs_aCOV T10	-0.96	0.33	-1.62	-0.30	-2.87	127	<.001
	CON_vs_aCOV T30	1.23	0.35	0.53	1.93	3.47	127	<.001
RDW	(Intercept)	13.23	0.22	12.79	13.66	60.21	147	<.001
	CON_vs_aCOV T0	0.49	0.29	-0.09	1.06	1.68	147	.09
	CON_vs_aCOV T2	0.52	0.35	-0.18	1.21	1.47	147	.14
	CON_vs_aCOV T5	0.01	0.33	-0.64	0.67	0.04	147	.97
	CON_vs_aCOV T10	0.99	0.48	0.05	1.94	2.08	147	.04
	CON_vs_aCOV T30	1.33	0.39	0.56	2.09	3.41	147	<.001
Fibrinogen	(Intercept)	3.30	0.29	2.74	3.87	11.58	79	<.001
	CON_vs_aCOV T0	1.20	0.56	0.08	2.32	2.14	79	.04
	CON_vs_aCOV T2	0.56	0.55	-0.54	1.65	1.01	79	.31
	CON_vs_aCOV T5	-0.63	0.57	-1.77	0.51	-1.10	79	.27
	CON_vs_aCOV T10	0.73	0.92	-1.10	2.56	0.79	79	.43
	CON_vs_aCOV T30	0.45	0.74	-1.01	1.92	0.62	79	.54
D-Dimers	(Intercept)	0.42	0.14	0.14	0.70	2.98	145	<.001
	CON_vs_aCOV T0	0.33	0.19	-0.05	0.71	1.73	145	.09
	CON_vs_aCOV T2	0.37	0.22	-0.06	0.80	1.70	145	.09
	CON_vs_aCOV T5	0.65	0.26	0.13	1.16	2.49	145	.01
	CON_vs_aCOV T10	0.87	0.32	0.23	1.50	2.69	145	.01
	CON_vs_aCOV T30	0.62	0.35	-0.07	1.31	1.79	145	.08

Table S2

Descriptive Statistics and statistical results of hemorheological variables

	CON		aCOV T0		aCOV T2		aCOV T5		aCOV T10		aCOV T30	
	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
EI max [au]	0.50	0.02	0.49	0.02	0.48	0.03	0.47	0.03	0.47	0.04	0.49	0.03
SS ½	1.23	0.20	1.15	0.23	1.09	0.19	1.07	0.21	1.12	0.27	1.13	0.19
SS ½ EI max	2.47	0.34	2.36	0.43	2.27	0.32	2.25	0.36	2.33	0.47	2.31	0.30
Isc max	34.25	5.69	34.71	6.63	35.57	7.24	37.72	5.39	34.51	4.29	36.07	4.46
AI [%]	59.01	7.41	65.83	7.27	62.46	11.21	58.25	11.98	59.21	11.15	59.47	8.37
Shr at dIsc min	154.83	152.91	326.69	206.78	260.13	115.41	258.60	210.55	246.88	159.18	173.33	89.30
T ½ ($^1/_s$)	2.77	1.02	1.92	0.77	2.44	1.35	2.99	1.98	2.96	1.65	2.73	1.11

Time differences- Time as factor

Deformability

EI max

F(5, 36.79) = 4.38, p <.001, ES = 0.42 [0.23, 0.63]

	b	*SE*	95 % - CI	95 %- CI	*t*	df $_{error}$	*p*
(Intercept)	0.5	0	0.49	0.5	124.25	184	<.001
CON_vs_aCOV T0	-0.01	0.01	-0.02	0	-1.47	184	.145
CON_vs_aCOV T2	-0.02	0.01	-0.03	0	-2.78	184	.006
CON_vs_aCOV T5	-0.02	0.01	-0.04	-0.01	-3.86	184	<.001
CON_vs_aCOV T10	-0.02	0.01	-0.04	-0.01	-3.14	184	.002
CON_vs_aCOV T30	-0.01	0.01	-0.03	0.01	-1.01	184	.315

SS ½

F (5, 38.3) = 2.36, p = .059, ES = 0.38 [0.18; 0.6]

	b	*SE*	95 % - CI	95 %- CI	*t*	df $_{error}$	*p*
(Intercept)	1.23	0.03	1.16	1.29	37.88	184	<.001
CON_vs_aCOV T0	-0.08	0.05	-0.17	0.02	-1.61	184	.110
CON_vs_aCOV T2	-0.13	0.05	-0.23	-0.04	-2.85	184	.005
CON_vs_aCOV T5	-0.16	0.05	-0.25	-0.06	-3.2	184	.002
CON_vs_aCOV T10	-0.11	0.06	-0.22	0	-1.92	184	.056
CON_vs_aCOV T30	-0.1	0.07	-0.23	0.04	-1.37	184	.173

SS ½ / EI max Ratio

F(5, 38.51) = 1.55, p= .199, ES = 0.36 [0.16; 0.6]

	b	*SE*	95 % - CI	95 %- CI	*t*	df $_{error}$	*p*
(Intercept)	2.47	0.06	2.36	2.58	43.86	184	<.001
CON_vs_aCOV T0	-0.11	0.08	-0.27	0.05	-1.35	184	.177
CON_vs_aCOV T2	-0.2	0.08	-0.36	-0.04	-2.44	184	.016
CON_vs_aCOV T5	-0.22	0.09	-0.39	-0.05	-2.55	184	.012
CON_vs_aCOV T10	-0.14	0.1	-0.33	0.06	-1.38	184	.171
CON_vs_aCOV T30	-0.16	0.12	-0.4	0.08	-1.29	184	.197

Robust Models: Changes over time

	b	SE	*t*	*p*	R^2 cond. [marginal]	*RMSE*

EI max	(Intercept)	0.48664	0.00350	138.99710	.00000	0.363 [0.031]	0.020
	time	-0.00190	0.00076	-2.48783	.01431		
	time²	0.00006	0.00003	2.41461	.01734		
SS ½	(Intercept)	1.11130	0.02669	41.64450	.00000	0.375 [0.009]	0.152
	time	-0.00637	0.00570	-1.11842	.26579		
	time²	0.00024	0.00019	1.29852	.19676		
SS ½ EI max	(Intercept)	2.28658	0.04548	50.27441	.00000	0.416 [0.004]	0.256
	time	-0.00553	0.00931	-0.59353	.55404		
	time²	0.00023	0.00031	0.74956	.45510		

Note. Robust linear mixed effects regression models for aggregation parameters. Sign. quadratic change in EL max, No sign. change in SS ½, SS ½/EI max

Robust Models: Cubic

		b	**SE**	***t***	***p***	***R²* cond. [marginal]**	***RMSE***
EI max	(Intercept)	0.489	0.004	127.573	0.00000	0.352 [0.040]	0.019
	time	-0.004	0.002	-2.171	0.032		
	time²	0.000	0.000	1.551	0.124		
	time^3	0.000	0.000	-1.329	0.186		
SS ½ individual	(Intercept)	1.12857	0.02917	38.68386	0.00000	0.373[0.019]	0.150
	time	-0.02784	0.01530	-1.81964	0.07155		
	time²	0.00335	0.00204	1.64409	0.10303		
	time^3	-0.00008	0.00005	-1.53691	0.12720		
SS ½/EI max	(Intercept)	2.31328	0.04929	46.93515	0.00000	0.409 [0.013]	0.254
	time	-0.03859	0.02502	-1.54226	0.12594		
	time²	0.00501	0.00334	1.50154	0.13613		
	time^3	-0.00012	0.00009	-1.44314	0.15187		

Aggregation:

Isc max (au)

Difference between CON and aCOV T0, aCOV T2, aCOV T5, aCOV T10, aCOV T30. Assumptions of linear regression visually checked => can be assumed

F(5, 40.6) = 1.28, p = .292, ES = 0.34 [0.16; 0.53]

	b	*SE*	95 % - CI	95 %- CI	*t*	df $_{error}$	*p*
(Intercept)	34.25	0.83	32.61	35.89	41.22	183	<.001
CON_vs_aCOV T0	0.39	1.22	-2.02	2.8	0.32	183	.749
CON_vs_aCOV T2	2.38	1.24	-0.06	4.83	1.92	183	.056
CON_vs_aCOV T5	2.73	1.27	0.22	5.24	2.15	183	.033
CON_vs_aCOV T10	0.14	1.5	-2.82	3.1	0.09	183	.925
CON_vs_aCOV T30	1.82	1.84	-1.81	5.45	0.99	183	.324

AI (%)

Difference between CON and aCOV T0, aCOV T2, aCOV T5, aCOV T10, aCOV T30. Assumptions of linear regression visually checked: not given, robust models.

F(5, 36.76) = 3.95, p<.001, ES =0.4 [0.22; 0.59]

	b	*SE*	95 % - CI	95 %- CI	*t*	df $_{error}$	*p*
(Intercept)	59.11	1.43	56.3	61.93	41.44	183	<.001
CON_vs_aCOV T0	6.72	2.07	2.64	10.8	3.25	183	.001
CON_vs_aCOV T2	3.24	2.12	-0.95	7.42	1.53	183	.129
CON_vs_aCOV T5	1.24	2.2	-3.11	5.58	0.56	183	.576

CON_vs_aCOV T10	0.93	2.67	-4.34	6.2	0.35	183	.728
CON_vs_aCOV T30	0.35	3.16	-5.87	6.58	0.11	183	.911

Multilevel models:

Prediction of AI by ZP. Analyzed using multilevel model.

Assumptions of linear regression visually checked. No NV of residuals available.

Robust linear mixed effects regression (Koller, M. robustlmm: An R Package for Robust Estimation of Linear Mixed-Effects Models. J. Stat. Softw. 2016, 75, 1–24. https://doi.org/10.18637/jss.v075.i06.). P-values calculated from t-statistics of the robust estimate and df of the equivalent "normal" model.

Shr at dIsc min (1/s)

Difference between CON and aCOV T0, aCOV T2, aCOV T5, aCOV T10, aCOV T30. Assumptions of linear regression visually checked cannot be assumed; use robust model.

F(5, 34.12) = 17.64, p <.001, ES = 0.48 [0.32; 0.75]

	b	***SE***	**95 % - CI**	**95 %- CI**	***t***	**df $_{error}$**	***p***
(Intercept)	119.67	19.27	81.65	157.68	6.21	183	<.001
CON_vs_aCOV T0	139.41	29.52	81.17	197.64	4.72	183	<.001
CON_vs_aCOV T2	131.85	27.78	77.04	186.65	4.75	183	<.001
CON_vs_aCOV T5	70.5	31.04	9.25	131.75	2.27	183	.024
CON_vs_aCOV T10	98.1	34.56	29.92	166.28	2.84	183	.005
CON_vs_aCOV T30	53.67	41.95	-29.11	136.44	1.28	183	.202

T ½ [$^{1}/_{s}$]

Difference between CON and aCOV T0, aCOV T2, aCOV T5, aCOV T10, aCOV T30. Assumptions of linear regression visually verified not given: interpret robust model. F(5, 36.8) = 4.79, p <.010, ES = 0.42 [0.22; 0.66]

	b	*SE*	95 % - CI	95 %- CI	*t*	df $_{error}$	*p*
(Intercept)	2.77	0.2	2.37	3.16	13.64	183	<.001
CON_vs_aCOV T0	-0.85	0.29	-1.43	-0.27	-2.89	183	.004
CON_vs_aCOV T2	-0.32	0.3	-0.91	0.26	-1.09	183	.277
CON_vs_aCOV T5	0.23	0.31	-0.38	0.83	0.75	183	.456
CON_vs_aCOV T10	0.2	0.36	-0.52	0.91	0.54	183	.590
CON_vs_aCOV T30	-0.04	0.44	-0.9	0.83	-0.08	183	.935

Time development: Aggregation

Multilevel models:

Prediction of AV by ZP and ZP². Analyzed by multilevel model.

Assumptions of linear regression visually checked. No NV of the residuals available. Robust linear mixed effects regression (Koller, M. robustlmm: An R Package for Robust Estimation of Linear Mixed-Effects Models. J. Stat. Softw. 2016, 75, 1–24. https://doi.org/10.18637/jss.v075.i06.). P-values calculated from t-statistics of the robust estimate and df of the equivalent "normal" model.

Quadratic Models

		b	SE	*t*	*p*	R^2 cond. [marginal]	*RMSE*
Isc max	(Intercept)	35.236	0.840	41.928	< .001	.543 [.009]	4.238
	time	0.217	0.151	1.435	.154		
	time²	-0.008	0.005	-1.527	.130		
AI [%]	(Intercept)	65.040	1.466	44.373	< .001	.615 [.057]	6.915
	time	-0.968	0.247	-3.917	< .001		
	time²	0.027	0.008	3.235	< .010		
Shr at dIsc min	(Intercept)	278.321	19.077	14.589	< .001	.535 [.054]	132.494
	time	-11.015	3.583	-3.074	< .010		
	time²	0.271	0.118	2.290	< .050		
T ½ ($^1/_s$)	(Intercept)	2.003	0.170	11.748	< .001	.590 [.065]	0.993
	time	0.122	0.030	4.048	< .001		
	time²	-0.003	0.001	-3.338	< .001		

Note. Robust linear mixed effects regression models for aggregation parameters

Significant quadratic time effect for AI, Shr at Disc and t ½ could be found, indicating a quadratic change of these parameters over time.

For Isc max there was no sign. effect of time: on average no change of Isc max over time could be found

Cubic Models:

		b	SE	*t*	*p*	R^2 cond. [marginal]	*RMSE*
Isc max	(Intercept)	34.5	0.88	39.26	<.001	0.556[0.027]	4.183
	time	1.04	0.4	2.63	.010		

	time²	-0.12	0.05	-2.36	.020		
	time³	0.00	0.00	2.22	.029		
AI [%]	(Intercept)	66.13	1.54	42.97	<.001	0.636 [0.070]	6.85
	time	-2.36	0.65	-3.66	<.001		
	time²	0.23	0.09	2.66	.009		
	time³	-0.01	0.00	-2.38	.020		
Shr at dIsc min	(Intercept)	287.63	20.29	14.18	<.001	0.539 [0.060]	131.774
	time	-21.95	9.37	-2.34	.021		
	time²	1.84	1.26	1.46	.146		
	time³	-0.04	0.03	-1.25	.215		
T ½ ($^1/_s$)	(Intercept)	1.89	0.18	10.45	<.001	0.609 [0.074]	0.967
	time	0.27	0.08	3.48	.001		
	time²	-0.03	0.01	-2.41	.018		
	time³	0.00	0.00	2.11	.038		

Table S3: Descriptive Statistics and statistical results of erythrocyte staining intensities

	aCov (N= 9)				Con (N =28[a] bzw. 29[b])					
	M (SD)	25% - Quantil	75%- Quantil	Median	M (SD)	25% - Quantil	75%- Quantil	Median	W	p
Immuno 1177[a]	6.14 (2.47)	2.85	8.25	6.64	6.72 (2.91)	4.46	8.22	6.84	139	.658
Nitro[b]	14.48 (7.47)	8.92	18.95	12.89	4.75 (2.32)	2.95	6.08	4.43	14	5.914e-06

Comparison between aCov and healthy controls (Con) was possible for t0, only.

Unpaired Wilcoxon tests were used to determine the difference between aCov at t0 and Con.