Supplemental Table S1. Pearson correlation coefficients[1] for stress biomarkers and occurrences of documented stress events in male zoo-housed giraffes.

Variable	Variable								
	Age	BCS	Cortisol	DHEA-S	Cortisol / DHEA-S	Cholesterol	NEFA	Fructosamine	Allostatic Load
Age	.	-0.36	-0.35	-0.17	0.38	0.55	-0.23	0.71	0.46
	.	NS	NS	NS	NS	NS	NS	0.10	0. NS
BCS	-0.36	.	0.39	-0.12	0.25	-0.22	0.44	-0.16	0.29
	NS	.	NS	NS	NS	NS	NS	NS	NS
Allostatic Load	0.46	0.29	0.15	-0.61	0.83	0.84	-0.50	0.66	.
	NS	NS	NS	NS	0.04	0.04	NS	NS	
Immobilizations	0.68	-0.76	-0.31	0.10	-0.11	-0.01	0.00	0.24	-0.28
	NS	0.08	NS	NS	NS	NS	NS	NS	NS
Illnesses	0.60	0.18	0.04	-0.80	0.83	0.54	-0.06	0.31	0.77
	NS	NS	NS	0.06	0.04	NS	NS	NS	0.07
Pregnancies	.	.	.	.	.	.	.	.	.
	.	.	.	.	.	.	.	.	.
Transports	0.00	0.77	0.12	0.15	0.01	-0.47	0.76	-0.13	0.00
	NS	0.07	NS	NS	NS	NS	0.08	NS	NS
Total Stress Events	0.83	-0.56	-0.26	-0.17	0.19	0.13	0.05	0.31	0.02
	0.04	NS	NS	NS	NS	NS	NS	NS	NS
Stress Events/Year	0.48	0.08	-0.50	0.23	0.09	0.70	-0.44	0.70	0.60
	NS	NS	NS	NS	NS	NS	NS	NS	NS

[1] Pearson correlation coefficients (r) are the top number for each cell. *P*-values for each correlation are italicized and below each coefficient.

BCS, body condition score; DHEA-S, dehydroepiandrosterone sulfate; NEFA, non-esterified fatty acids; NS, not significant.

Supplemental Table S2. Pearson correlation coefficients[1] for stress biomarkers and occurrences of documented stress events in female zoo-housed giraffes.

Variable	Variable								
	Age	**BCS**	**Cortisol**	**DHEA-S**	**Cortisol / DHEA-S**	**Cholesterol**	**NEFA**	**Fructosamine**	**Allostatic Load**
Age	.	0.60	-0.27	-0.49	0.24	0.51	0.12	0.13	0.09
	.	*0.04*	*NS*	*0.10*	*NS*	*0.09*	*NS*	*NS*	*NS*
BCS	0.60	.	-0.27	-0.25	0.06	0.29	0.13	-0.12	-0.37
	0.04	.	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*
Allostatic Load	0.09	-0.37	0.41	-0.33	0.79	0.35	0.49	0.47	..
	NS	*NS*	*NS*	*NS*	*<0.01*	*NS*	*0.10*	*NS*	.
Immobilizations	0.51	0.16	0.15	-0.23	0.42	0.53	0.40	0.61	0.51
	0.09	*NS*	*NS*	*NS*	*NS*	*0.08*	*NS*	*0.04*	*0.09*
Illnesses	0.34	0.31	-0.34	-0.67	0.31	0.03	0.39	0.18	0.26
	NS	*NS*	*NS*	*0.02*	*NS*	*NS*	*NS*	*NS*	*NS*
Pregnancies	0.73	0.40	-0.17	-0.53	0.27	0.18	0.20	0.17	0.23
	0.01	*NS*	*NS*	*0.07*	*NS*	*NS*	*NS*	*NS*	*NS*
Transports	0.20	0.12	0.14	-0.50	0.54	0.00	0.19	-0.25	0.42
	NS	*NS*	*NS*	*0.10*	*0.07*	*NS*	*NS*	*NS*	*NS*
Total Stress Events	0.68	0.30	0.03	-0.53	0.56	0.51	0.52	0.60	0.61
	0.02	*NS*	*NS*	*0.08*	*0.06*	*0.09*	*0.08*	*0.04*	*0.03*
Stress Events/Year	0.46	0.51	-0.22	0.06	-0.24	0.19	-0.40	-0.33	-0.55
	NS	*0.09*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*0.06*

[1] Pearson correlation coefficients (r) are the top number for each cell. *P*-values for each correlation are italicized and below each coefficient.

BCS, body condition score; DHEA-S, dehydroepiandrosterone sulfate; NEFA, non-esterified fatty acids; NS, not significant.

Supplemental Table S3. Pearson correlation coefficients[1] for stress biomarkers and occurrences of documented stress events in young (<10 years of age) zoo-housed giraffes.

Variable	Variable								
	Age	BCS	Cortisol	DHEA-S	Cortisol / DHEA-S	Cholesterol	NEFA	Fructosamine	Allostatic Load
Age	.	0.38	0.37	0.62	0.06	-0.22	-0.17	0.63	-0.34
	.	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*
BCS	0.38	.	-0.25	-0.20	-0.32	0.62	0.47	0.49	-0.77
	NS	.	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*0.07*
Allostatic Load	-0.34	-0.77	0.37	0.30	0.41	-0.07	-0.10	-0.12	.
	NS	*0.07*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	.
Immobilizations	-0.09	0.16	-0.21	-0.02	-0.31	0.63	0.68	0.58	0.31
	NS	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*
Illnesses	0.13	0.53	-0.71	-0.67	-0.71	0.10	0.47	-0.31	-0.69
	NS	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*
Pregnancies	0.85	0.20	0.73	0.80	0.52	-0.12	-0.35	0.55	0.00
	0.03	*NS*	*0.10*	*0.05*	*NS*	*NS*	*NS*	*NS*	*NS*
Transports	-0.15	-0.20	0.33	0.26	0.33	0.51	0.31	0.29	0.77
	NS	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*0.07*
Total Stress Events	0.25	0.61	-0.52	-0.35	-0.65	0.64	0.90	0.35	-0.21
	NS	*NS*	*NS*	*NS*	*NS*	*NS*	*0.01*	*NS*	*NS*
Stress Events/Year	0.95	0.24	0.49	0.69	0.23	-0.43	-0.45	0.49	-0.35
	<0.01	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*

[1] Pearson correlation coefficients (r) are the top number for each cell. *P*-values for each correlation are italicized and below each coefficient.

BCS, body condition score; DHEA-S, dehydroepiandrosterone sulfate; NEFA, non-esterified fatty acids; NS, not significant.

Supplemental Table S4. Pearson correlation coefficients[1] for stress biomarkers and occurrences of documented stress events in older (10+ years of age) zoo-housed giraffes.

Variable	Variable								
	Age	BCS	Cortisol	DHEA-S	Cortisol / DHEA-S	Cholesterol	NEFA	Fructosamine	Allostatic Load
Age	.	0.36	0.07	-0.22	0.17	-0.10	0.02	-0.25	-0.08
	.	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*
BCS	0.36	.	0.17	-0.21	0.13	-0.32	0.09	-0.24	-0.15
	NS	.	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*
Allostatic Load	-0.08	-0.15	0.66	-0.35	0.80	0.39	0.38	0.43	.
	NS	*NS*	*0.02*	*NS*	*<0.01*	*NS*	*NS*	*NS*	.
Immobilizations	0.25	-0.29	0.53	0.13	0.23	0.01	0.36	0.43	0.27
	NS	*NS*	*0.07*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*
Illnesses	0.13	0.16	0.19	-0.61	0.42	-0.13	0.18	0.04	0.41
	NS	*NS*	*NS*	*0.04*	*NS*	*NS*	*NS*	*NS*	*NS*
Pregnancies	0.42	0.36	0.01	-0.51	0.17	-0.62	0.24	0.09	0.06
	NS	*NS*	*NS*	*0.09*	*NS*	*0.03*	*NS*	*NS*	*NS*
Transports	0.16	0.45	0.12	-0.34	0.43	-0.20	0.43	-0.32	0.29
	NS	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*
Total Stress Events	0.40	-0.13	0.65	-0.21	0.48	-0.17	0.54	0.44	0.48
	NS	*NS*	*0.02*	*NS*	*NS*	*NS*	*0.07*	*NS*	*NS*
Stress Events/Year	0.03	0.37	-0.50	0.28	-0.32	0.18	-0.50	-0.48	-0.44
	NS	*NS*	*0.10*	*NS*	*NS*	*NS*	*0.09*	*NS*	*NS*

[1] Pearson correlation coefficients (r) are the top number for each cell. *P*-values for each correlation are italicized and below each coefficient.

BCS, body condition score; DHEA-S, dehydroepiandrosterone sulfate; NEFA, non-esterified fatty acids; NS, not significant.

Supplemental Table S5. Spearman correlation coefficients[1] for stress biomarkers and occurrences of documented stress events in male zoo-housed giraffes.

Variable	Variable								
	Age	BCS	Cortisol	DHEA-S	Cortisol / DHEA-S	Cholesterol	NEFA	Fructosamine	Allostatic Load
Age	.	-0.27	-0.18	-0.26	0.09	0.44	-0.44	0.79	0.52
	.	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*0.06*	*NS*
BCS	-0.27	.	0.39	0.13	0.39	-0.13	0.65	-0.13	0.31
	NS	.	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*
Allostatic Load	0.52	0.31	-0.07	-0.17	0.17	0.85	-0.44	0.85	.
	NS	*NS*	*NS*	*NS*	*NS*	*0.03*	*NS*	*0.03*	.
Immobilizations	0.62	-0.65	0.03	-0.26	0.09	-0.14	-0.26	0.14	-0.30
	NS	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*
Illnesses	0.59	0.27	0.09	-0.56	0.38	0.09	0.12	0.29	0.44
	NS	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*
Pregnancies	.	.	.	.	.	.	.	.	.
	.	.	.	.	.	.	.	.	.
Transports	0.00	0.77	0.17	0.34	0.17	-0.51	0.85	-0.17	0.00
	NS	*0.07*	*NS*	*NS*	*NS*	*NS*	*0.03*	*NS*	*NS*
Total Stress Events	0.67	-0.66	-0.23	-0.32	-0.09	-0.14	-0.23	0.17	-0.22
	NS	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*
Stress Events/Year	0.62	0.13	-0.49	0.37	-0.31	0.60	-0.31	0.89	0.78
	NS	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*0.02*	*0.07*

[1] Spearman correlation coefficients (r) are the top number for each cell. *P*-values for each correlation are italicized and below each coefficient.

BCS, body condition score; DHEA-S, dehydroepiandrosterone sulfate; NEFA, non-esterified fatty acids; NS, not significant.

Supplemental Table S6. Spearman correlation coefficients[1] for stress biomarkers and occurrences of documented stress events in female zoo-housed giraffes.

Variable	Variable								
	Age	**BCS**	**Cortisol**	**DHEA-S**	**Cortisol / DHEA-S**	**Cholesterol**	**NEFA**	**Fructosamine**	**Allostatic Load**
Age	.	0.58	-0.29	-0.53	0.05	0.56	0.41	0.32	0.00
	.	*0.05*	*NS*	*0.08*	*NS*	*0.06*	*NS*	*NS*	*NS*
BCS	0.58	.	-0.33	-0.20	-0.13	0.19	0.17	-0.21	-0.61
	0.05	*.*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*0.04*
Allostatic Load	0.00	-0.61	0.42	-0.14	0.49	0.21	0.34	0.65	.
	NS	*0.04*	*NS*	*NS*	*0.10*	*NS*	*NS*	*0.02*	*.*
Immobilizations	0.63	0.13	-0.06	-0.41	0.20	0.56	0.65	0.63	0.57
	0.03	*NS*	*NS*	*NS*	*NS*	*0.06*	*0.02*	*0.03*	*0.05*
Illnesses	0.30	0.28	-0.35	-0.55	0.08	0.02	0.54	0.09	0.00
	NS	*NS*	*NS*	*0.07*	*NS*	*NS*	*0.07*	*NS*	*NS*
Pregnancies	0.73	0.33	-0.24	-0.53	0.22	0.28	0.43	0.32	0.14
	0.01	*NS*	*NS*	*0.08*	*NS*	*NS*	*NS*	*NS*	*NS*
Transports	0.11	0.14	0.01	-0.40	0.50	0.02	0.23	-0.18	0.29
	NS	*NS*	*NS*	*NS*	*0.09*	*NS*	*NS*	*NS*	*NS*
Total Stress Events	0.76	0.31	-0.09	-0.58	0.29	0.57	0.67	0.59	0.46
	<0.01	*NS*	*NS*	*0.05*	*NS*	*0.05*	*0.02*	*0.04*	*NS*
Stress Events/Year	0.55	0.58	-0.25	-0.22	-0.20	0.27	-0.16	-0.11	-0.62
	0.06	*0.05*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*0.03*

[1] Spearman correlation coefficients (r) are the top number for each cell. *P*-values for each correlation are italicized and below each coefficient.

BCS, body condition score; DHEA-S, dehydroepiandrosterone sulfate; NEFA, non-esterified fatty acids; NS, not significant.

Supplemental Table S7. Spearman correlation coefficients[1] for stress biomarkers and occurrences of documented stress events in young (<10 years of age) zoo-housed giraffes.

Variable	Variable								
	Age	BCS	Cortisol	DHEA-S	Cortisol / DHEA-S	Cholesterol	NEFA	Fructosamine	Allostatic Load
Age	.	0.42	0.15	0.31	0.00	-0.28	-0.06	0.77	-0.46
	.	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*0.07*	*NS*
BCS	0.42	.	-0.39	-0.39	-0.13	0.65	0.65	0.39	-0.77
	NS	.	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*0.07*
Allostatic Load	-0.46	-0.77	0.34	0.51	0.34	-0.17	-0.34	-0.17	.
	NS	*0.07*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	.
Immobilizations	-0.13	0.14	-0.33	0.15	-0.09	0.58	0.58	0.39	0.36
	NS	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*
Illnesses	0.27	0.54	-0.62	-0.79	-0.62	0.03	0.47	-0.26	-0.70
	NS	*NS*	*NS*	*0.06*	*NS*	*NS*	*NS*	*NS*	*NS*
Pregnancies	0.71	0.20	0.65	0.65	0.65	-0.13	-0.39	0.65	0.00
	NS	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*
Transports	-0.28	-0.20	0.13	0.39	0.39	0.39	0.13	0.13	0.77
	NS	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*0.07*
Total Stress Events	0.36	0.66	-0.64	-0.38	-0.41	0.49	0.81	0.29	-0.26
	NS	*NS*	*NS*	*NS*	*NS*	*NS*	*0.05*	*NS*	*NS*
Stress Events/Year	0.93	0.13	0.37	0.49	0.09	-0.54	-0.37	0.71	-0.34
	0.01	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*

[1] Spearman correlation coefficients (r) are the top number for each cell. *P*-values for each correlation are italicized and below each coefficient.

BCS, body condition score; DHEA-S, dehydroepiandrosterone sulfate; NEFA, non-esterified fatty acids; NS, not significant.

Supplemental Table S8. Spearman correlation coefficients[1] for stress biomarkers and occurrences of documented stress events in older (10+ years of age) zoo-housed giraffes.

Variable	Variable								
	Age	BCS	Cortisol	DHEA-S	Cortisol / DHEA-S	Cholesterol	NEFA	Fructosamine	Allostatic Load
Age	.	0.39	0.12	-0.27	0.19	-0.01	0.19	-0.04	-0.07
	.	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*
BCS	0.39	.	0.06	-0.09	0.20	-0.26	0.17	-0.43	-0.34
	NS	.	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*
Allostatic Load	-0.07	-0.34	0.41	-0.32	0.43	0.37	0.17	0.84	.
	NS	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*<0.01*	.
Immobilizations	0.43	-0.29	0.46	-0.07	0.24	-0.05	0.19	0.35	0.30
	NS	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*
Illnesses	0.19	0.11	0.10	-0.47	0.41	-0.09	0.24	0.15	0.34
	NS	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*
Pregnancies	0.32	0.30	-0.01	-0.41	0.33	-0.52	0.53	0.07	-0.05
	NS	*NS*	*NS*	*NS*	*NS*	*0.08*	*0.08*	*NS*	*NS*
Transports	0.15	0.43	0.04	-0.31	0.28	-0.16	0.45	-0.26	0.18
	NS	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*
Total Stress Events	0.47	-0.20	0.40	-0.06	0.21	-0.24	0.44	0.25	0.27
	NS	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*
Stress Events/Year	0.05	0.41	-0.57	0.24	-0.49	0.31	-0.30	-0.39	-0.46
	NS	*NS*	*0.05*	*NS*	*0.10*	*NS*	*NS*	*NS*	*NS*

[1] Spearman correlation coefficients (r) are the top number for each cell. *P*-values for each correlation are italicized and below each coefficient.

BCS, body condition score; DHEA-S, dehydroepiandrosterone sulfate; NEFA, non-esterified fatty acids; NS, not significant.