

Table 3. Circadian and circasemidian phase changes in heart rate variability indices in response to spaceflight differ between the two long-term missions

Flight 1				Flight 2			
Circadians	Before	ISS01	ISS02	Circadians	Before	ISS01	ISS02
HR (b/min)	16:55	14:18	15:10	HR (b/min)	15:26	15:01	12:18
NN-interval (msec)	6:22	2:45	3:15	NN-interval (msec)	3:08	2:52	0:46
r-MSSD (msec)	14:08	2:59	2:48	r-MSSD (msec)	2:13	1:46	1:32
pNN50 (%)	15:34	2:07	17:56	pNN50 (%)	3:29	0:28	1:10
LF/HF ratio (-)	16:17	16:35	5:57	LF/HF ratio (-)	13:49	13:13	16:58
LF-component (msec ²) (0.05-0.15 Hz)	16:32	21:10	7:35	LF-component (msec ²) (0.05-0.15 Hz)	6:27	23:04	2:30
HF-component (msec ²) (0.15-0.50 Hz)	14:41	4:08	4:08	HF-component (msec ²) (0.15-0.50 Hz)	3:32	2:03	2:43
TF (msec ²) (0.0001-0.50 Hz)	13:00	12:23	12:09	TF (msec ²) (0.0001-0.50 Hz)	10:21	17:40	9:17
ULF (msec ²) (0.0001-0.003 Hz)	13:30	12:37	13:01	ULF (msec ²) (0.0001-0.003 Hz)	11:11	17:25	10:36
VLF (msec ²) (0.003-0.04 Hz)	14:03	5:59	7:08	VLF (msec ²) (0.003-0.04 Hz)	6:13	3:47	1:58
LF (msec ²) (0.04-0.15 Hz)	16:15	0:36	7:06	LF (msec ²) (0.04-0.15 Hz)	4:09	23:47	0:49
HF (msec ²) (0.15-0.40 Hz)	14:39	4:02	4:21	HF (msec ²) (0.15-0.40 Hz)	1:56	1:52	1:54
LF-band (msec ²) (0.01-0.05 Hz)	13:52	4:25	5:27	LF-band (msec ²) (0.01-0.05 Hz)	4:45	3:54	2:08
MF1-band (msec ²) (0.05-0.10 Hz)	16:44	1:17	5:03	MF1-band (msec ²) (0.05-0.10 Hz)	3:55	0:58	1:07
MF2-band (msec ²) (0.10-0.15 Hz)	16:21	14:40	13:18	MF2-band (msec ²) (0.10-0.15 Hz)	5:20	14:24	14:17
HF-band (msec ²) (0.15-0.20 Hz)	15:51	9:19	9:07	HF-band (msec ²) (0.15-0.20 Hz)	1:53	3:40	2:37
HF02-band (msec ²) (0.20-0.30 Hz)	12:53	3:27	2:43	HF02-band (msec ²) (0.20-0.30 Hz)	2:30	1:44	2:20
HF03-band (msec ²) (0.30-0.40 Hz)	13:37	3:33	22:29	HF03-band (msec ²) (0.30-0.40 Hz)	1:43	1:58	2:20
HF04-band (msec ²) (0.40-0.50 Hz)	0:37	14:51	18:55	HF04-band (msec ²) (0.40-0.50 Hz)	1:38	1:11	1:40
β	6:32	1:36	2:10	β	1:36	4:38	23:11
Circasemidians	Before	ISS01	ISS02	Circasemidians	Before	ISS01	ISS02
HR (b/min)	-355	-328	-312	HR (b/min)	-292	-306	-305
NN-interval (msec)	-82	-238	-225	NN-interval (msec)	-207	-37	-211
r-MSSD (msec)	-93	-20	-235	r-MSSD (msec)	-207	-16	-236
pNN50 (%)	-98	-359	-316	pNN50 (%)	-212	-357	-247
LF/HF ratio (-)	-9	-352	-6	LF/HF ratio (-)	-299	-271	-342
LF-component (msec ²) (0.05-0.15 Hz)	-98	-9	-10	LF-component (msec ²) (0.05-0.15 Hz)	-215	-356	-229
HF-component (msec ²) (0.15-0.50 Hz)	-93	-205	-284	HF-component (msec ²) (0.15-0.50 Hz)	-223	-17	-242
TF (msec ²) (0.0001-0.50 Hz)	-320	-320	-302	TF (msec ²) (0.0001-0.50 Hz)	-246	-92	-302
ULF (msec ²) (0.0001-0.003 Hz)	-4	-323	-310	ULF (msec ²) (0.0001-0.003 Hz)	-255	-97	-316
VLF (msec ²) (0.003-0.04 Hz)	-93	-288	-258	VLF (msec ²) (0.003-0.04 Hz)	-240	-62	-241
LF (msec ²) (0.04-0.15 Hz)	-281	-11	-194	LF (msec ²) (0.04-0.15 Hz)	-209	-19	-227
HF (msec ²) (0.15-0.40 Hz)	-92	-211	-280	HF (msec ²) (0.15-0.40 Hz)	-206	-16	-233
LF-band (msec ²) (0.01-0.05 Hz)	-92	-240	-243	LF-band (msec ²) (0.01-0.05 Hz)	-230	-62	-236
MF1-band (msec ²) (0.05-0.10 Hz)	-94	-17	-217	MF1-band (msec ²) (0.05-0.10 Hz)	-208	-29	-221
MF2-band (msec ²) (0.10-0.15 Hz)	-284	-337	-342	MF2-band (msec ²) (0.10-0.15 Hz)	-214	-320	-260
HF-band (msec ²) (0.15-0.20 Hz)	-92	-8	-281	HF-band (msec ²) (0.15-0.20 Hz)	-206	-37	-235
HF02-band (msec ²) (0.20-0.30 Hz)	-91	-221	-262	HF02-band (msec ²) (0.20-0.30 Hz)	-38	-15	-238
HF03-band (msec ²) (0.30-0.40 Hz)	-96	-6	-309	HF03-band (msec ²) (0.30-0.40 Hz)	-207	-19	-250
HF04-band (msec ²) (0.40-0.50 Hz)	-284	-354	-322	HF04-band (msec ²) (0.40-0.50 Hz)	-204	-5	-264
β	-90	-32	-230	β	-206	-27	-45

Shaded areas mean circadian phase misalignment induced by astronaut social jetlag on Earth before spaceflight mission.

Circasemidian acrophases expressed in (negative) degrees, with 360°=12 hours, 0°=00:00