

ANS function report

ROBERT RIGLIETTI

Fri, Feb 21 2025, 13:25:31

2025-02-17T132531 - ROBERT RIGLIETTI - ffbcd1.kdf

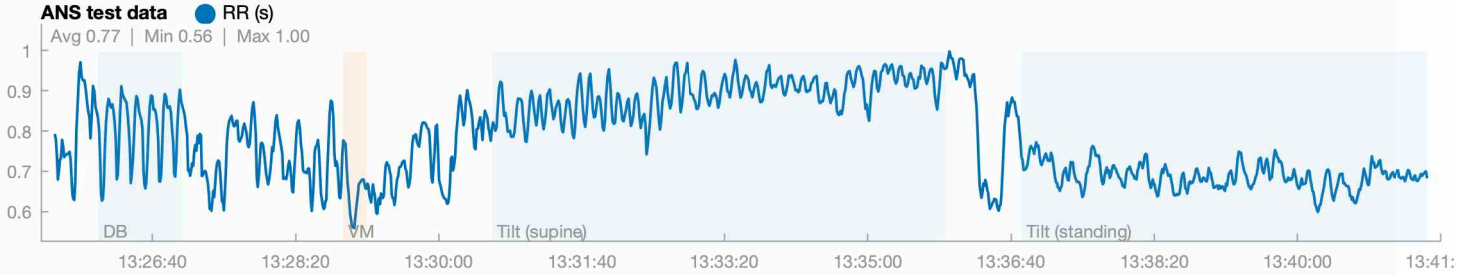
Male / 29 years
178 cm / 74 kg (BMI=23.5 kg/m²)
HR max: 191 bpm
HR rest: 60 bpm

Valsalva maneuver (VM)
Valsalva ratio
1.26

Deep breathing (DB)
HR response
23.3 bpm
Resting HR
75 bpm

Orthostatic test (Tilt)
30:15 ratio
1.41
RMSSD (supine)
23 ms

NOT FOR CLINICAL USE

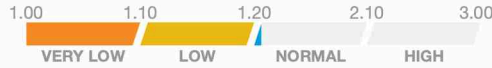


Valsalva maneuver (VM)

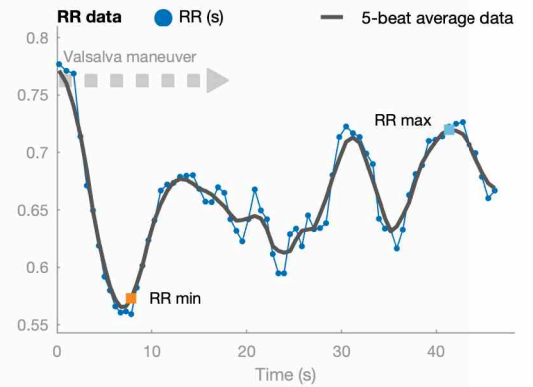
(Subject forcibly exhales into a mouthpiece of a manometer to 40 mmHg for 15 seconds)

Valsalva ratio
(RR max / RR min)
1.26

RR max: 720 ms (83 bpm)
RR min: 573 ms (105 bpm)



For young adults the Valsalva ratio should be higher than 1.2. For healthy subjects aged 16-69 years, the average Valsalva ratio is 1.75 ± 0.39 (Mean ± SD).



Deep breathing (DB)

(Subject breathes in and out at six breaths per min, paced by metronome)

HR response
(HR max-RR min)
23.3 bpm

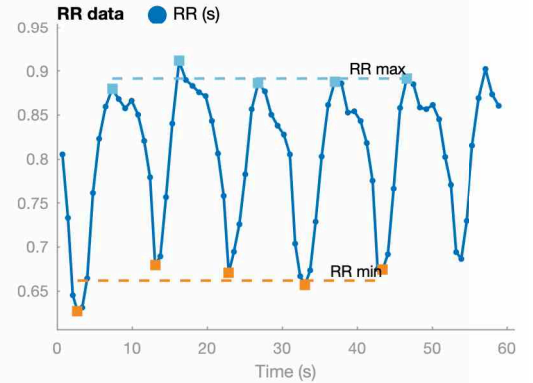
RR max: 892 ms (67 bpm)
RR min: 662 ms (91 bpm)



E-I 230 ms
E/I ratio 1.35
Resting HR **75 bpm**

HRV Scores
PNS Index -0.55
RMSSD 47 ms
RSA magnitude 69 ms
Observed RESP 0.10 Hz

In young adults, the HR response to deep breathing should be above 11 bpm. For healthy subjects aged 16-65 years, the average HR response is 31 ± 9 bpm (Mean ± SD).

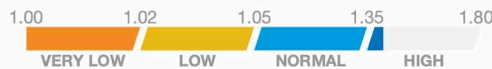


Orthostatic test (Tilt)

(Active or passive posture change from supine to standing)

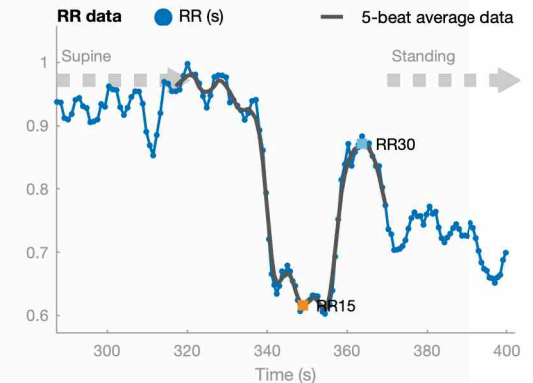
30:15 ratio
(RR30 / RR15)
1.41

RR15: 616 ms (97 bpm)
RR30: 871 ms (69 bpm)



HRV Scores	Supine	Standing	Supine	Standing
Mean HR	68 bpm	87 bpm	LF power	446 ms ² / 188 ms ²
PNS index	-0.73	-2.05	HF power	470 ms ² / 100 ms ²
RMSSD	23 ms	11 ms	HF power (n.u.)	51.3 % / 34.8 %
SDNN	33 ms	23 ms	RESP	0.16 Hz / 0.33 Hz

The 30:15 ratio for head-up tilt should be above 1.05. For healthy subjects aged 16-69 years, the average 30:15 ratio is 1.29 ± 0.17 (Mean ± SD).



HRV Results ("DB")

ROBERT RIGLIETTI

Male / 29 years
 178 cm / 74.4 kg (BMI=23.5 kg/m²)
 HR max: 191 bpm
 HR rest: 60 bpm

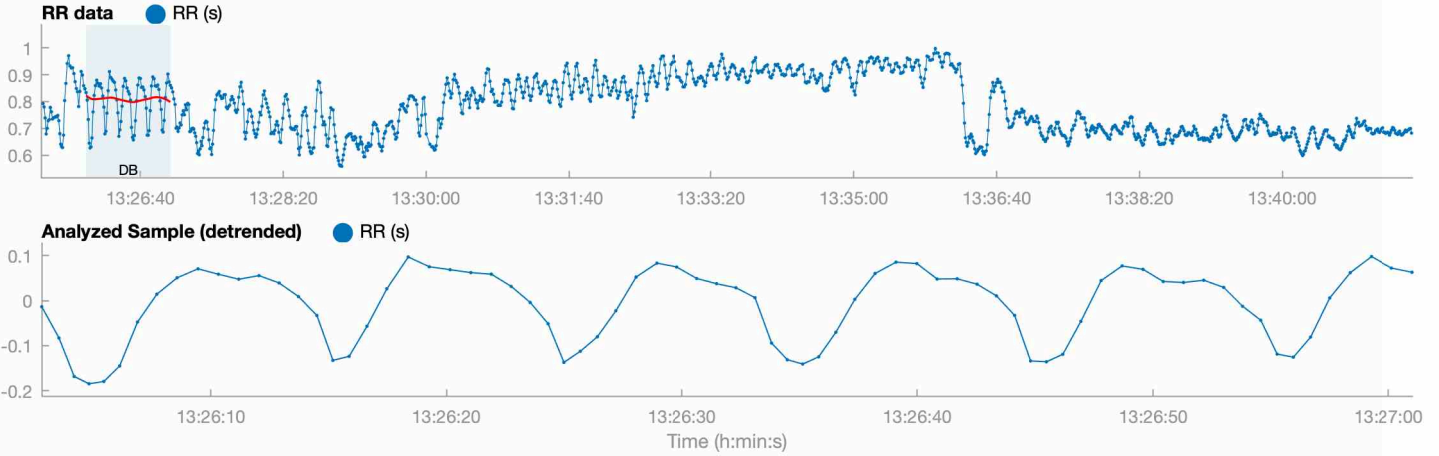
Fri, Feb 21 2025, 13:25:31

Measurement length: 00:16:00
 Number of samples: 4
 Beat correction: Automatic correction
 Trend removal: Smoothn priors

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Sample ("DB")

Start time: 13:26:03
 Sample length: 00:00:59
 Beats corrected: 0 (0.00 %)



Autonomic nervous system (ANS)

Parasympathetic nervous system (PNS)

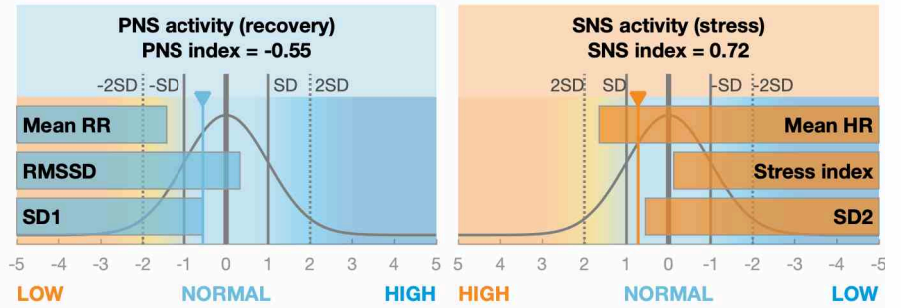
Mean RR RMSSD SD1
797 ms **46.9 ms** **23.2 %**

PNS index = -0.55

Sympathetic nervous system (SNS)

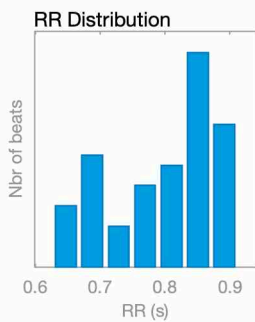
Mean HR Stress index SD2
75 bpm **9.3** **76.8 %**

SNS index = 0.72



Time-domain results

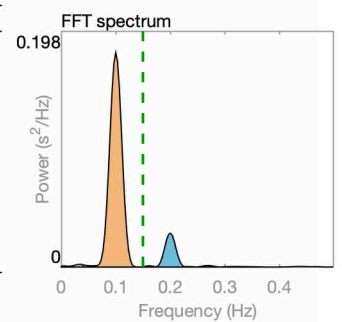
Variable	Units	Value
Mean RR*	(ms)	797
Mean HR*	(bpm)	75
Min HR*	(bpm)	68
Max HR*	(bpm)	91
SDNN	(ms)	81.5
RMSSD	(ms)	46.9
NN50	(beats)	21
pNN50	(%)	28.77
HRV triang.ind.		12.33
TINN	(ms)	274.0
Stress index		9.3
DC	(ms)	88.3
DCmod	(ms)	57.8
SDANN	(ms)	-
SDNN index	(ms)	-



Frequency-domain results

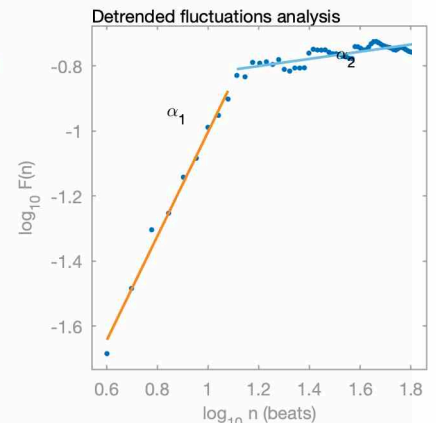
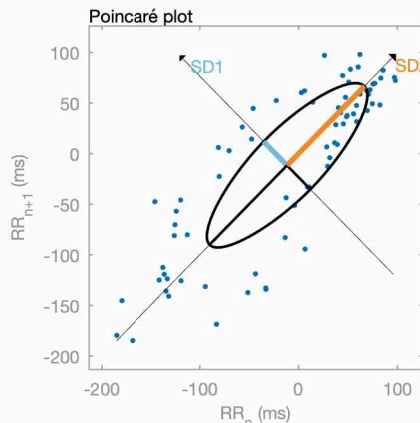
Variable	Units	VLF	LF	HF
Frequency band	(Hz)	0.00-0.04	0.04-0.15	0.15-0.40
Peak frequency	(Hz)	0.033	0.100	0.200
Power	(ms ²)	53	4799	749
Power	(log)	3.968	8.476	6.619
Power	(%)	0.94	85.68	13.37
Power	(n.u.)	-	86.50	13.50

Total power	(ms ²)	5601		
Total power	(log)	8.631		
LF/HF ratio		6.408		
RESP	(Hz)	0.15		



Nonlinear results

Variable	Units	Value
Poincaré plot		
SD1	(ms)	33.4
SD2	(ms)	110.8
SD2/SD1		3.313
Approximate entropy (ApEn)		0.455
Sample entropy (SampEn)		0.704
Detrended fluctuations analysis (DFA)		
DFA alpha1		1.604
DFA alpha2		0.110
Correlation dimension (D2)		1.599
Recurrence plot analysis (RPA)		
RPA Lmean	(beats)	12.60
RPA Lmax	(beats)	64
RPA REC	(%)	30.01
RPA DET	(%)	99.37
RPA ShanEn		2.518
Multi-scale entropy (MSE)		0.118 - 1.521



*Results are calculated from non-detrended RR data

HRV Results ("VM")

ROBERT RIGLIETTI

Male / 29 years
 178 cm / 74.4 kg (BMI=23.5 kg/m²)
 HR max: 191 bpm
 HR rest: 60 bpm

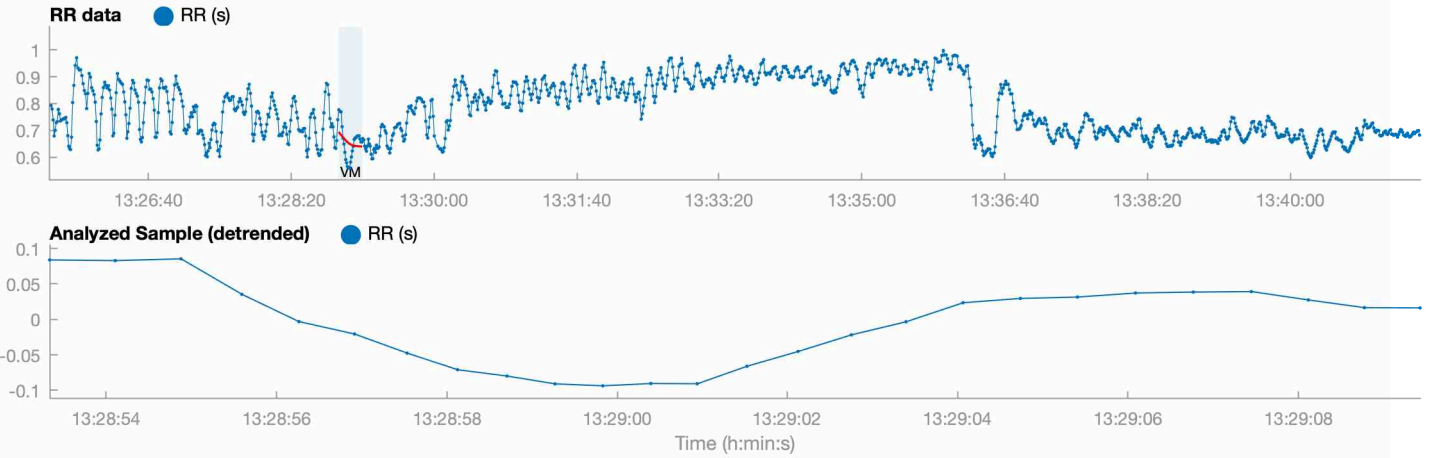
Fri, Feb 21 2025, 13:25:31

Measurement length: 00:16:00
 Number of samples: 4
 Beat correction: Automatic correction
 Trend removal: Smoothn priors

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Sample ("VM")

Start time: 13:28:53
 Sample length: 00:00:17
 Beats corrected: 0 (0.00 %)



Autonomic nervous system (ANS)

Parasympathetic nervous system (PNS)

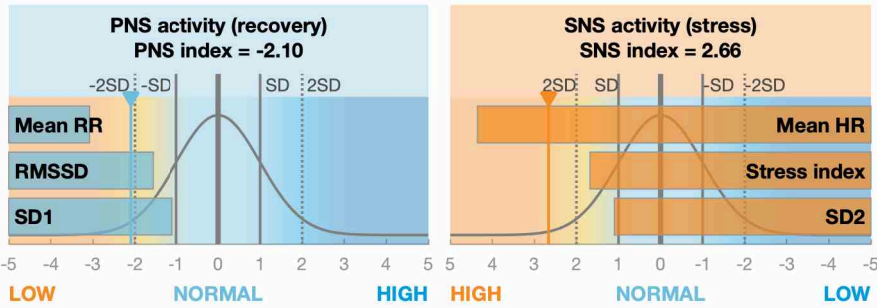
Mean RR RMSSD SD1
649 ms 18.5 ms 14.4 %

PNS index = -2.10

Sympathetic nervous system (SNS)

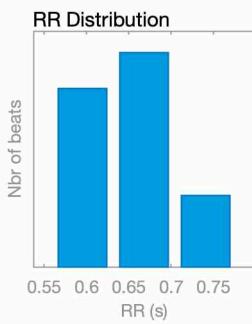
Mean HR Stress index SD2
92 bpm 14.0 85.6 %

SNS index = 2.66



Time-domain results

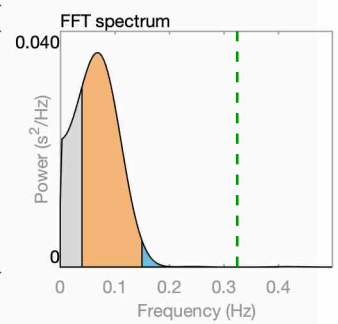
Variable	Units	Value
Mean RR*	(ms)	649
Mean HR*	(bpm)	92
Min HR*	(bpm)	78
Max HR*	(bpm)	106
SDNN	(ms)	57.9
RMSSD	(ms)	18.5
NN50	(beats)	1
pNN50	(%)	4.00
HRV triang.ind.		6.50
TINN	(ms)	161.0
Stress index		14.0
DC	(ms)	5.9
DCmod	(ms)	10.9
SDANN	(ms)	-
SDNN index	(ms)	-



Frequency-domain results

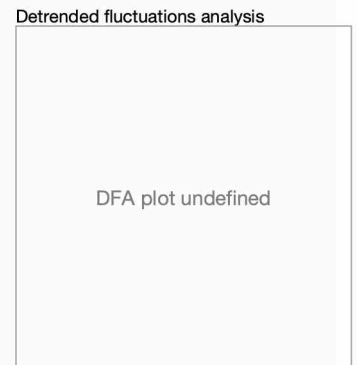
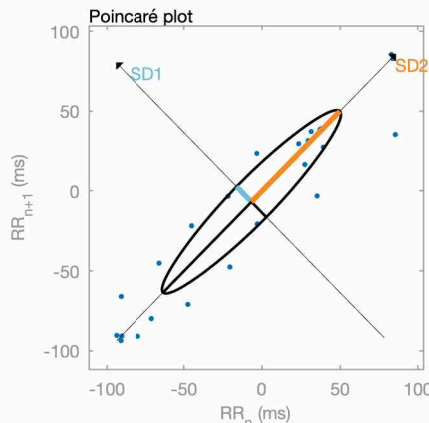
Variable	Units	VLF	LF	HF
Frequency band	(Hz)	0.00-0.04	0.04-0.15	0.15-0.40
Peak frequency	(Hz)	0.040	0.070	0.150
Power	(ms ²)	983	2777	72
Power	(log)	6.891	7.929	4.270
Power	(%)	25.66	72.47	1.87
Power	(n.u.)	-	97.49	2.51

Total power	(ms ²)	3832		
Total power	(log)	8.251		
LF/HF ratio		38.808		
RESP	(Hz)	0.32		



Nonlinear results

Variable	Units	Value
Poincaré plot		
SD1	(ms)	13.5
SD2	(ms)	80.2
SD2/SD1		5.932
Approximate entropy (ApEn)		-
Sample entropy (SampEn)		-
Detrended fluctuations analysis (DFA)		
DFA alpha1		-
DFA alpha2		-
Correlation dimension (D2)		-
Recurrence plot analysis (RPA)		
RPA Lmean	(beats)	-
RPA Lmax	(beats)	-
RPA REC	(%)	-
RPA DET	(%)	-
RPA ShanEn		-
Multi-scale entropy (MSE)		--



*Results are calculated from non-detrended RR data

HRV Results ("lying")

ROBERT RIGLIETTI

Male / 29 years
 178 cm / 74.4 kg (BMI=23.5 kg/m²)
 HR max: 191 bpm
 HR rest: 60 bpm

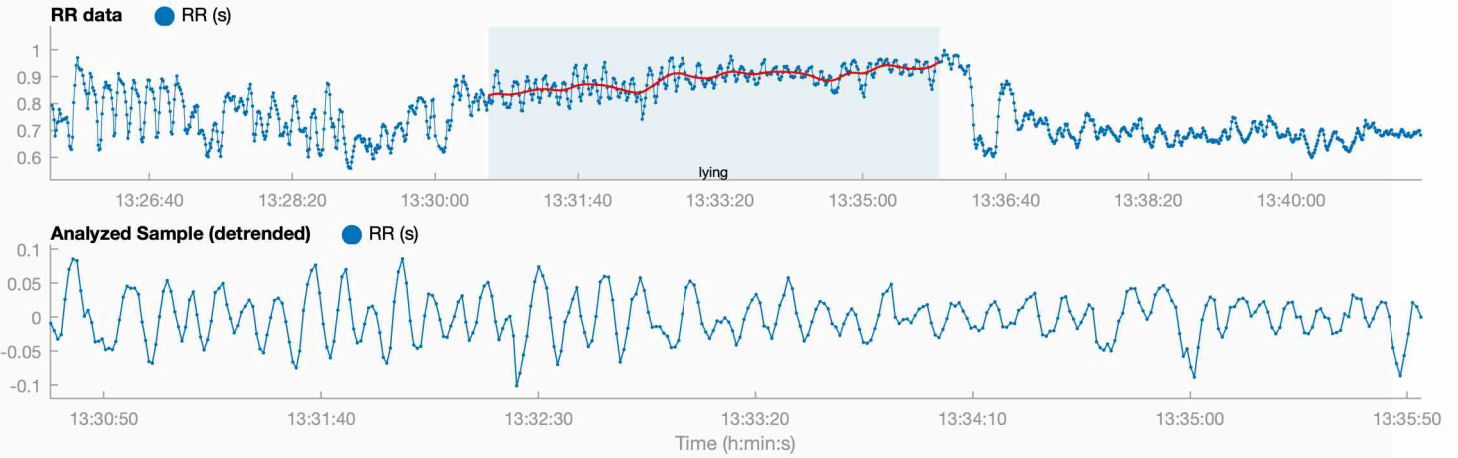
Fri, Feb 21 2025, 13:25:31

Measurement length: 00:16:00
 Number of samples: 4
 Beat correction: Automatic correction
 Trend removal: Smoothn priors

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Sample ("lying")

Start time: 13:30:38
 Sample length: 00:05:17
 Beats corrected: 0 (0.00 %)



Autonomic nervous system (ANS)

Parasympathetic nervous system (PNS)

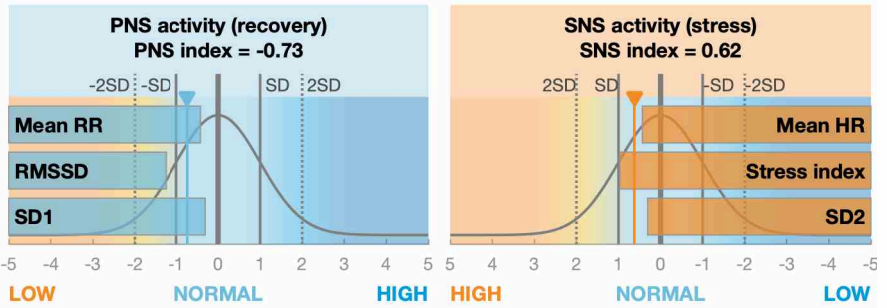
Mean RR RMSSD SD1
888 ms **23.2 ms** **27.1 %**

PNS index = -0.73

Sympathetic nervous system (SNS)

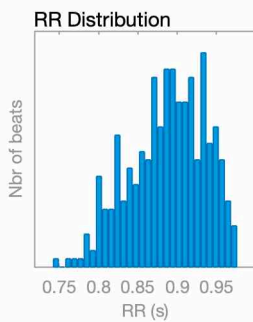
Mean HR Stress index SD2
68 bpm **12.2** **72.9 %**

SNS index = 0.62



Time-domain results

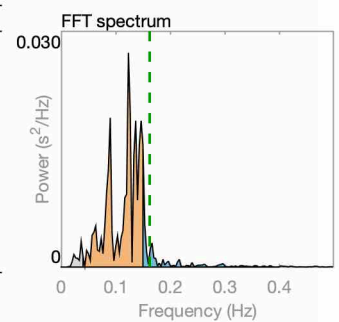
Variable	Units	Value
Mean RR*	(ms)	888
Mean HR*	(bpm)	68
Min HR*	(bpm)	62
Max HR*	(bpm)	76
SDNN	(ms)	33.3
RMSSD	(ms)	23.2
NN50	(beats)	6
pNN50	(%)	1.69
HRV triang.ind.		10.17
TINN	(ms)	166.0
Stress index		12.2
DC	(ms)	32.8
DCmod	(ms)	25.4
SDANN	(ms)	-
SDNN index	(ms)	-



Frequency-domain results

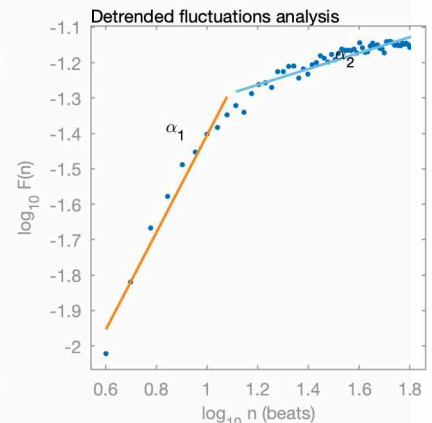
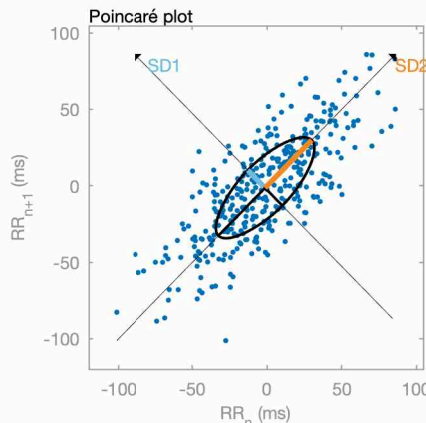
Variable	Units	VLF	LF	HF
Frequency band	(Hz)	0.00-0.04	0.04-0.15	0.15-0.40
Peak frequency	(Hz)	0.037	0.123	0.150
Power	(ms ²)	31	806	117
Power	(log)	3.436	6.692	4.764
Power	(%)	3.25	84.46	12.28
Power	(n.u.)	-	87.30	12.69

Total power	(ms ²)	954	-	-
Total power	(log)	6.861	-	-
LF/HF ratio		6.879	-	-
RESP	(Hz)	0.16	-	-



Nonlinear results

Variable	Units	Value
Poincaré plot		
SD1	(ms)	16.4
SD2	(ms)	44.2
SD2/SD1		2.694
Approximate entropy (ApEn)		0.940
Sample entropy (SampEn)		1.234
Detrended fluctuations analysis (DFA)		
DFA alpha1		1.377
DFA alpha2		0.225
Correlation dimension (D2)		2.210
Recurrence plot analysis (RPA)		
RPA Lmean	(beats)	11.07
RPA Lmax	(beats)	198
RPA REC	(%)	28.61
RPA DET	(%)	98.29
RPA ShanEn		3.181
Multi-scale entropy (MSE)		0.239 - 1.885



*Results are calculated from non-detrended RR data

HRV Results ("standing")

ROBERT RIGLIETTI

Male / 29 years
178 cm / 74.4 kg (BMI=23.5 kg/m²)
HR max: 191 bpm
HR rest: 60 bpm

Fri, Feb 21 2025, 13:25:31

Measurement length: 00:16:00
Number of samples: 4
Beat correction: Automatic correction
Trend removal: Smoothn priors

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Sample ("standing")
Start time: 13:36:22
Sample length: 00:05:09
Beats corrected: 0 (0.00 %)



Autonomic nervous system (ANS)

Parasympathetic nervous system (PNS)

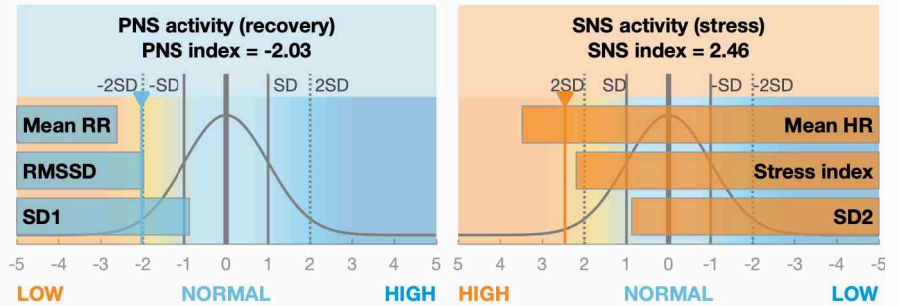
Mean RR RMSSD SD1
690 ms 12.2 ms 18.0 %

PNS index = -2.03

Sympathetic nervous system (SNS)

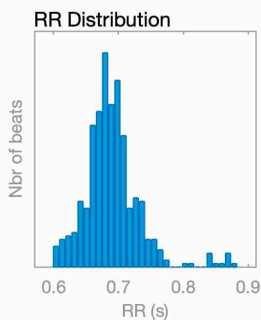
Mean HR Stress index SD2
87 bpm 15.3 82.0 %

SNS index = 2.46



Time-domain results

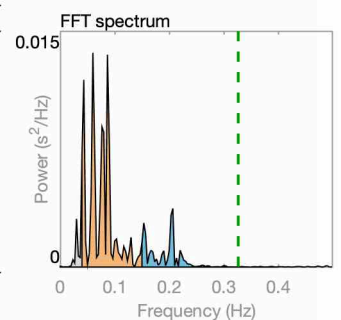
Variable	Units	Value
Mean RR*	(ms)	690
Mean HR*	(bpm)	87
Min HR*	(bpm)	69
Max HR*	(bpm)	99
SDNN	(ms)	28.5
RMSSD	(ms)	12.2
NN50	(beats)	2
pNN50	(%)	0.45
HRV triang.ind.		7.86
TINN	(ms)	151.0
Stress index		15.3
DC	(ms)	11.9
DCmod	(ms)	11.8
SDANN	(ms)	-
SDNN index	(ms)	-



Frequency-domain results

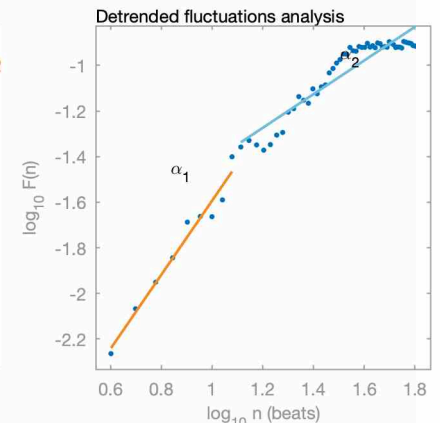
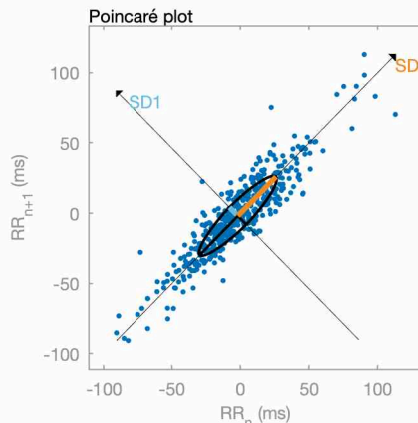
Variable	Units	VLF	LF	HF
Frequency band	(Hz)	0.00-0.04	0.04-0.15	0.15-0.40
Peak frequency	(Hz)	0.040	0.060	0.207
Power	(ms ²)	31	360	88
Power	(log)	3.435	5.887	4.478
Power	(%)	6.47	75.16	18.37
Power	(n.u.)	-	80.36	19.64

Total power	(ms ²)	479	-	-
Total power	(log)	6.173	-	-
LF/HF ratio		4.092	-	-
RESP	(Hz)	0.33	-	-



Nonlinear results

Variable	Units	Value
Poincaré plot		
SD1	(ms)	8.6
SD2	(ms)	39.4
SD2/SD1		4.563
Approximate entropy (ApEn)		1.031
Sample entropy (SampEn)		1.125
Detrended fluctuations analysis (DFA)		
DFA alpha1		1.622
DFA alpha2		0.738
Correlation dimension (D2)		0.440
Recurrence plot analysis (RPA)		
RPA Lmean	(beats)	16.60
RPA Lmax	(beats)	418
RPA REC	(%)	44.23
RPA DET	(%)	99.53
RPA ShanEn		3.669
Multi-scale entropy (MSE)		0.625 - 1.953



*Results are calculated from non-detrended RR data

Time-varying HRV results

ROBERT RIGLIETTI

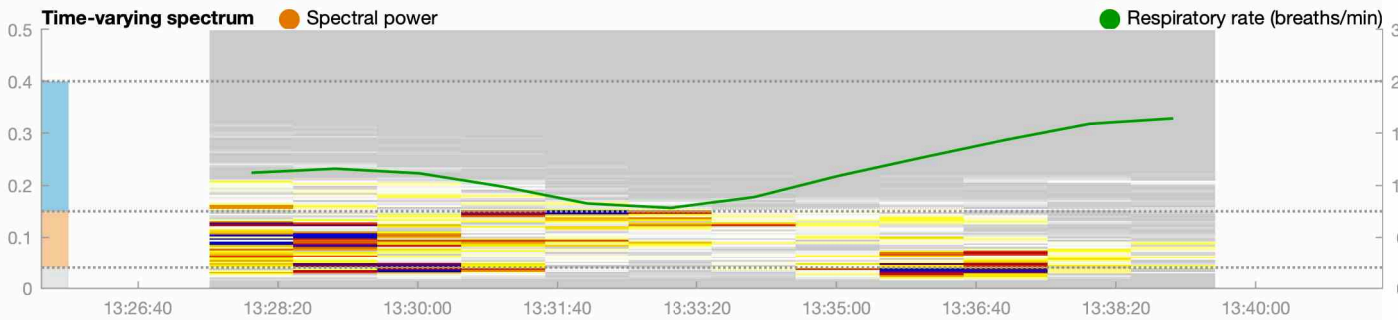
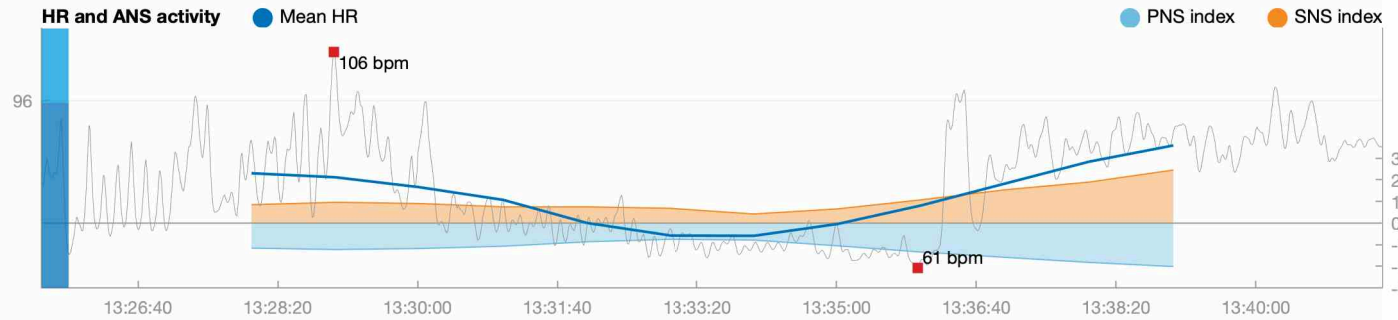
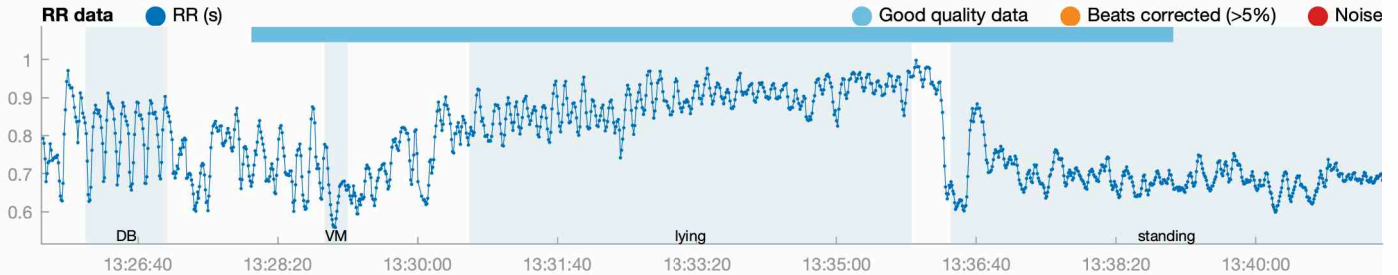
Male / 29 years
178 cm / 74.4 kg (BMI=23.5 kg/m²)
HR max: 191 bpm
HR rest: 60 bpm

Fri, Feb 21 2025, 13:25:31

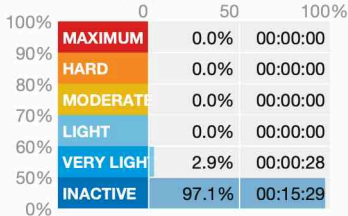
Measurement length: 00:16:00
Number of samples: 4
Beat correction: Automatic correction
Trend removal: Smooth priors

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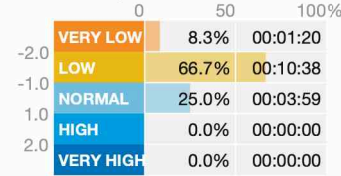
Sample: whole recording
Start time: 13:25:31
Sample length: 00:16:00
Beats corrected: 2 (0.16 %)



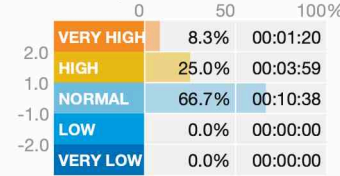
Heart rate (HR)



PNS activity



SNS activity



PNS index
Avg -1.24
Min -2.01
Max -0.75

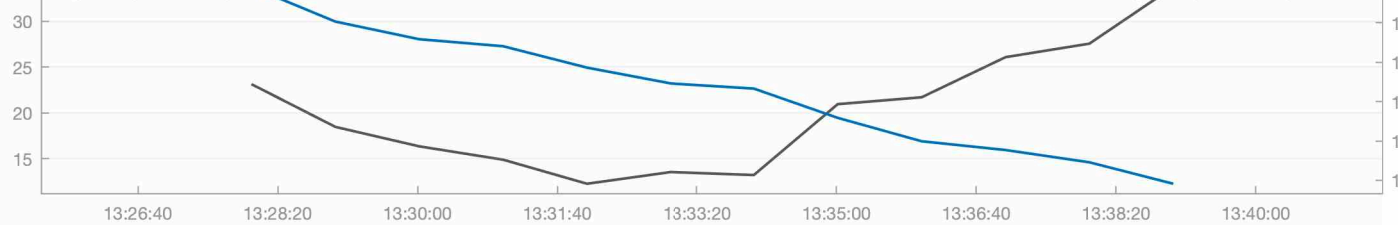
SNS index
Avg 1.08
Min 0.42
Max 2.45

Energy expenditure
26 / 45 kcal

BMR **Activity**

Optional parameters ● RMSSD (ms)

Avg 22.4 | Min 12.3 | Max 33.8



Optional parameters ● HF power (log)

Avg 5.22 | Min 4.20 | Max 6.27

