

Impact of Heat Stress on Production and Quality of Domestic Buffalo Dairies: Novel Detection Approaches and Adaptative Strategies to Cope with Climate Change in Egypt

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Supplementary Table S1. Meteorological data from 1st Sept to 17th Oct- 2023, study duration for the control group (Gp A) and modified group (Gp B)

Experiment day	Day/month	Air Temperature (°C)		DP (°C)		RH (%)		THI	
		Gp A (AT °C)	Gp B (BT °C)	Gp A	Gp B	Gp A	Gp B	Gp A	Gp B
1	1 st Sept	33	28	18.77	14.88	43.02	44.76	80.80 ^a	74.89 ^c
2	2 nd Sept	33	27	18.6	13.02	41.41	42.06	80.50 ^a	73.30 ^c
3	3 rd Sept	33	27	18.49	17.4	42.28	55.73	80.66 ^a	75.02 ^c
4	4 th Sept	34	28	19.64	7.64	42.94	27.70	82.02 ^a	72.57 ^c
5	5 th Sept	34	27	19.88	15.46	43.59	49.26	82.14 ^a	74.21 ^c
6	6 th Sept	33	27	19.39	12.19	44.72	39.83	81.12 ^a	73.02 ^c
7	7 th Sept	33	28	19.73	15.21	45.67	45.72	81.30 ^a	75.02 ^c
8	8 th Sept	33	28	20.18	13.31	46.96	40.43	81.53 ^a	74.30 ^c
9	9 th Sept	34	28	19.57	11.63	42.76	36.21	81.98 ^a	73.72 ^c
10	10 th Sept	33	28	19.36	13.5	44.63	40.93	81.10 ^a	74.37 ^c
11	11 th Sept	35	29	18.23	14.57	37.20	41.39	82.06 ^a	75.64 ^b
12	12 th Sept	34	27	19.94	11.98	43.75	39.29	82.18 ^a	72.95 ^d
13	13 th Sept	33	27	19.69	8.64	45.56	31.44	81.27 ^a	71.96 ^d
14	14 th Sept	32	26	15.34	5.50	36.63	26.89	78.45 ^b	70.32 ^d
15	15 th Sept	30	25	13.69	5.77	36.91	29.08	76.16 ^b	69.48 ^d
16	16 th Sept	31	26	14.32	12.52	36.31	43.18	77.23 ^b	72.21 ^d
17	17 th Sept	32	26	18.6	6.50	45.04	28.82	79.93 ^b	70.54 ^d
18	18 th Sept	32	26	16.3	10.36	38.95	37.43	78.86 ^b	71.54 ^d
19	19 th Sept	32	26	18.17	10.23	43.84	37.11	79.72 ^b	71.50 ^d
20	20 th Sept	32	25	17.38	9.50	41.71	37.50	79.34 ^b	70.38 ^d
21	21 st Sept	32	25	15.35	5.46	36.66	28.46	78.45 ^b	69.42 ^d
22	22 nd Sept	34	27	14.44	7.22	30.90	28.54	79.66 ^b	71.60 ^d
23	23 rd Sept	34	27	18.96	10.55	41.17	35.74	81.67 ^a	72.50 ^d
24	24 th Sept	35	29	18.36	15.00	37.50	42.56	82.13 ^a	75.81 ^b
25	25 th Sept	35	29	18.43	13.70	37.67	39.13	82.16 ^a	75.31 ^c
26	26 th Sept	36	30	19.00	11.41	36.94	31.78	83.18 ^a	75.36 ^c
27	27 th Sept	36	30	18.26	10.50	35.27	29.92	82.82 ^a	75.07 ^c
28	28 th Sept	36	30	15.04	10.00	28.74	28.94	81.41 ^a	74.91 ^c
29	29 th Sept	37	31	14.68	10.70	26.59	28.63	82.01 ^a	75.95 ^b
30	30 th Sept	37	30	17.65	9.55	32.13	28.08	83.26 ^a	74.78 ^c
31	1 st Oct	37	31	18.77	11.41	34.47	30.01	83.80 ^a	76.18 ^b
32	2 nd Oct	36	30	18.60	12.52	36.41	34.19	83.06 ^a	75.73 ^b
33	3 rd Oct	32	26	18.49	6.77	44.73	29.36	79.87 ^b	70.61 ^d
34	4 th Oct	31	26	15.79	10.35	39.91	37.41	77.83 ^b	71.54 ^d
35	5 th Oct	32	26	17.54	12.52	42.14	43.18	79.42 ^b	72.21 ^d
36	6 th Oct	29	24	15.98	8.19	45.32	36.44	76.22 ^b	69.10 ^d
37	7 th Oct	28	23	12.33	8.09	37.92	38.44	73.96 ^c	68.11 ^d

38	8th Oct	28	23	13.02	9.35	39.67	41.86	74.20^c	68.40^d
39	9th Oct	28	23	13.50	7.26	40.93	36.33	74.37^c	67.92^d
40	10th Oct	23	20	15.50	9.83	62.68	51.95	70.20^c	65.31^d
41	11th Oct	29	24	15.00	8.19	42.56	36.44	75.81^b	69.10^d
42	12th Oct	28	22	16.35	10.50	49.17	48.04	75.49^b	67.65^d
43	13th Oct	28	23	14.88	10.60	44.76	45.51	74.89^c	68.71^d
44	14th Oct	28	22	14.65	10.73	44.10	48.78	74.80^c	67.71^d
45	15th Oct	32	26	12.16	11.63	29.80	40.72	77.24^b	71.92^d
46	16th Oct	30	24	11.41	8.19	31.78	36.44	75.40^b	69.10^d
47	17th Oct	28	22	15.71	10.95	47.21	49.50	75.22^b	67.76^d
Mean ±SE		32.23 ± 0.43	26.40 ± 0.38	16.9± 0.35	10.7± 0.41	40.45 ± 0.90	37.89 ± 1.05	79.29^b ± 0.46	72.02^d ±0.41

AT °C: Ambient Temperature outside barn (°C), BT °C: inside Barn Temperature (°C), DP) °C: Dew Point (°C), RH (%): Relative Humidity %, THI: Temperature Humidity Index
Hs modelling: ^a CHSZ (≥ 80.28), ^b SHSZ (75.40-80.27), ^c MHSZ (73.22-75.39), ^d (NHSZ (56.71-73.21)

Supplementary Table S2. Total and average Daily Milk production data sheets from 1st Sept to 17th Oct- 2023, study duration for each buffalo of the control (Gp A) and modified group (Gp B)

No.	Day/month	Daily Milk Yield/buffalo of Gp A						TDMY Gp A (A1-A6)	Daily Milk Yield/buffalo of Gp B						TDMY Gp B (B1-B6)
		A1	A2	A3	A4	A5	A6		B1	B2	B3	B4	B5	B6	
1	1 st Sept	2.68	3.80	3.07	3.11	4.67	3.69	21.02	6.25	6.32	4.66	4.89	4.92	4.81	31.85
2	2 nd Sept	2.68	3.80	3.10	3.12	4.67	3.69	21.06	6.75	6.70	4.26	5.10	5.13	4.97	32.91
3	3 rd Sept	2.71	3.85	3.13	3.13	4.67	3.69	21.18	6.85	6.70	4.28	5.12	5.13	4.97	33.05
4	4 th Sept	2.55	3.27	3.45	2.87	4.54	3.47	20.15	6.35	6.40	4.69	4.90	4.95	4.81	32.10
5	5 th Sept	2.58	3.33	3.45	2.88	4.54	3.47	20.25	6.97	6.70	4.29	5.12	5.13	4.99	33.20
6	6 th Sept	2.75	3.89	3.61	3.22	4.75	3.72	21.94	7.05	6.72	4.32	5.20	5.15	5.03	33.47
7	7 th Sept	2.75	3.92	3.62	3.28	4.75	3.75	22.07	6.50	6.45	4.69	4.94	5.00	4.82	32.40
8	8 th Sept	2.75	3.97	3.62	3.28	4.75	3.75	22.12	6.60	6.45	4.69	4.97	5.00	4.87	32.58
9	9 th Sept	2.58	3.40	3.50	2.94	4.54	3.53	20.49	6.67	6.45	4.72	5.00	5.01	4.9	32.75
10	10 th Sept	2.76	4.00	3.63	3.32	4.75	4.78	23.24	6.67	6.45	4.74	5.00	5.01	4.9	32.77
11	11 th Sept	2.45	3.20	3.35	2.60	4.47	3.49	19.47	5.60	6.13	4.50	4.72	4.86	4.77	30.58
12	12 th Sept	2.61	3.45	3.53	2.95	4.60	3.55	20.69	7.18	6.72	4.35	5.20	5.18	5.05	33.68
13	13 th Sept	2.78	4.04	3.65	3.34	4.75	4.78	23.34	7.30	6.75	4.40	5.21	5.20	5.07	33.93
14	14 th Sept	3.08	4.14	3.65	3.50	4.80	3.85	23.02	7.54	6.80	4.52	5.37	5.24	5.12	34.59
15	15 th Sept	3.65	4.14	3.97	4.04	4.94	4.23	24.97	8.35	7.30	4.80	5.60	5.42	5.95	37.42
16	16 th Sept	3.50	4.17	3.92	4.04	4.90	4.18	24.71	7.67	6.80	4.54	5.37	5.24	5.12	34.74
17	17 th Sept	3.10	4.20	3.65	3.65	4.80	3.87	23.27	7.78	6.90	4.55	5.37	5.30	5.22	35.12
18	18 th Sept	3.18	4.20	3.65	3.72	4.80	3.97	23.52	7.80	7.00	4.58	5.45	5.30	5.32	35.45
19	19 th Sept	3.24	4.25	3.65	3.74	4.81	4.00	23.69	8.00	7.00	4.63	5.45	5.30	5.4	35.78
20	20 th Sept	3.27	4.33	3.67	3.78	4.82	4.04	23.91	8.37	7.43	4.80	5.60	5.42	6.17	37.79
21	21 st Sept	3.32	4.45	3.78	3.80	4.82	4.04	24.21	8.55	7.43	4.80	5.65	5.42	6.32	38.17
22	22 nd Sept	2.62	3.45	3.57	2.97	4.60	3.62	20.83	7.35	6.75	4.45	5.28	5.20	5.11	34.14
23	23 rd Sept	2.65	3.49	3.57	2.99	4.60	4.65	21.95	7.40	6.75	4.45	5.28	5.20	5.11	34.19
24	24 th Sept	2.46	3.20	3.37	2.63	4.47	3.40	19.53	5.77	6.25	4.60	4.75	4.86	4.77	31.00
25	25 th Sept	2.47	3.23	3.40	2.67	4.50	3.40	19.67	5.85	6.25	4.62	4.79	4.87	4.77	31.15
26	26 th Sept	2.15	2.82	3.22	2.47	4.37	3.32	18.35	5.20	6.03	4.32	4.58	4.80	4.62	29.55
27	27 th Sept	2.17	2.87	3.24	2.47	4.37	3.32	18.44	5.32	6.03	4.34	4.59	4.82	4.67	29.77
28	28 th Sept	2.18	2.90	3.28	2.50	4.37	3.35	18.58	5.35	6.05	4.35	4.62	4.82	4.67	29.86
29	29 th Sept	2.10	2.50	3.07	2.39	4.25	3.23	17.54	4.94	5.70	4.30	4.56	4.75	4.52	28.77
30	30 th Sept	2.10	2.52	3.10	2.35	4.25	3.23	17.55	5.40	6.03	4.40	4.62	4.82	4.67	29.94

31	1 st Oct	2.09	2.55	3.13	2.35	4.27	3.23	17.62	5.00	5.80	4.30	4.56	4.75	4.52	28.93	
32	2 nd Oct	2.20	2.95	3.28	2.50	4.42	3.36	18.71	5.47	6.00	4.47	4.62	4.84	4.69	30.12	
33	3 rd Oct	3.37	4.33	3.82	3.88	4.84	4.07	24.31	8.05	7.00	4.65	5.47	5.30	5.42	35.89	
34	4 th Oct	3.55	4.80	3.92	4.00	4.90	4.20	25.37	8.10	7.05	4.69	5.54	5.35	8.50	39.23	
35	5 th Oct	3.43	4.45	3.90	3.99	4.84	4.07	24.68	8.12	7.11	4.72	5.54	5.38	5.52	36.39	
36	6 th Oct	3.92	5.24	4.00	4.11	4.97	4.44	26.68	8.72	7.55	4.84	5.75	5.50	6.47	38.83	
37	7 th Oct	3.97	5.35	3.92	4.14	5.02	4.60	27.00	9.03	8.00	5.00	5.90	5.55	6.57	40.05	
38	8 th Oct	3.99	5.45	3.95	4.15	5.07	4.60	27.21	8.96	8.05	5.00	5.95	5.72	6.65	40.33	
39	9 th Oct	3.99	5.50	3.99	4.15	5.09	4.60	27.32	9.06	8.05	5.00	6.00	5.77	6.72	40.00	
40	10 th Oct	4.45	5.67	4.17	4.30	5.12	4.64	28.35	9.15	8.43	6.15	6.72	7.60	7.32	45.37	
41	11 th Oct	3.95	5.35	4.00	4.13	4.97	4.49	26.89	8.84	7.60	4.90	5.76	5.50	6.49	39.09	
42	12 th Oct	4.03	6.55	4.10	4.15	5.12	4.60	28.55	9.07	8.15	5.20	6.50	6.25	6.97	42.14	
43	13 th Oct	4.00	5.56	4.10	4.16	5.17	4.62	27.61	9.07	8.05	5.02	6.00	5.87	6.80	40.81	
44	14 th Oct	4.05	5.62	4.12	4.18	5.09	4.61	27.67	9.08	8.15	5.40	5.83	6.57	7.05	42.08	
45	15 th Oct	3.43	4.95	3.92	3.99	4.87	4.07	25.23	8.17	7.35	4.74	5.55	5.38	5.65	36.84	
46	16 th Oct	3.90	5.12	3.97	4.06	4.94	4.28	26.27	8.92	7.70	4.90	5.83	5.51	6.52	39.38	
47	17 th Oct	4.05	5.55	4.10	4.18	5.25	4.63	27.76	9.12	8.15	5.60	6.60	6.87	7.05	43.39	
Mean \pm SE of the total Daily milk yield (DMY)									22.94 \pm 0.47	Mean \pm SE of the total Daily milk yield (DMY)						35.15 \pm 0.61

A1-A6: Buffalo of group A 1-6; B1-6: Buffalo of group B

Supplementary Table S3. Physiological assessment: rectal temperature °C (RT) data sheets from 1st Sept to 17th Oct- 2023, study duration for each buffalo of the control (Gp A) and modified group (Gp B)

Day no.	Day/month	RT °C/buffalo of Gp A						Average RT °C/ gp A	RT °C/buffalo of Gp B						Average RT °C/ gp A
		A1	A2	A3	A4	A5	A6		B1	B2	B3	B4	B5	B6	
1	1 st Sept	39.21	39.22	39.12	39.10	39.12	39.10	39.15	37.50	37.85	37.35	38.52	38.50	38.00	37.95
2	2 nd Sept	39.21	39.12	39.20	39.21	39.22	39.20	39.19	37.50	37.60	37.25	38.50	38.50	38.00	37.89
3	3 rd Sept	39.12	39.15	39.26	39.22	39.23	39.55	39.26	37.55	37.65	37.58	38.54	38.50	38.20	38.00
4	4 th Sept	39.31	39.16	39.22	39.23	39.20	39.52	39.27	37.53	37.52	37.28	37.53	37.50	37.00	37.39
5	5 th Sept	39.22	39.08	39.23	39.24	39.25	39.23	39.21	37.50	37.65	37.50	38.20	38.50	38.00	37.89
6	6 th Sept	39.21	39.28	39.22	39.22	39.62	39.22	39.30	37.50	37.75	37.28	38.20	38.50	38.00	37.87
7	7 th Sept	39.23	39.25	39.30	39.25	39.44	39.33	39.30	37.50	37.85	37.58	38.20	37.50	38.10	37.79
8	8 th Sept	39.25	39.26	39.33	39.32	39.24	39.32	39.29	37.50	37.85	37.68	38.10	38.50	38.10	37.96
9	9 th Sept	39.26	39.22	39.24	39.20	39.24	39.26	39.24	37.50	37.85	37.78	38.20	38.50	38.00	37.97
10	10 th Sept	39.13	39.10	39.20	39.52	39.45	39.45	39.31	37.50	37.75	37.88	38.10	38.50	38.00	37.96

11	11 th Sept	39.17	39.15	39.25	39.22	39.25	39.25	39.22	37.50	37.85	37.58	38.00	38.50	38.20	37.94
12	12 th Sept	39.18	39.26	39.27	39.20	39.29	39.21	39.24	37.50	37.50	37.88	38.20	38.50	38.00	37.93
13	13 th Sept	39.12	39.50	39.26	39.25	39.20	39.20	39.26	37.50	37.85	37.88	38.20	38.50	38.00	37.99
14	14 th Sept	39.11	38.40	38.24	38.23	38.32	38.35	38.44	37.50	37.85	37.88	38.20	38.50	38.00	37.99
15	15 th Sept	38.52	38.52	38.23	38.22	38.22	38.22	38.32	37.50	37.85	37.88	38.20	37.50	38.00	37.82
16	16 th Sept	38.18	38.30	38.22	38.25	38.52	38.52	38.33	37.50	37.85	37.88	38.20	37.50	38.22	37.86
17	17 th Sept	38.13	38.28	38.52	38.52	38.52	38.36	38.39	37.50	37.85	37.88	38.20	38.50	38.20	38.02
18	18 th Sept	38.52	39.25	38.52	38.52	38.52	38.52	38.64	37.50	37.85	37.88	38.20	38.50	38.00	37.99
19	19 th Sept	39.22	39.22	39.37	38.52	38.52	38.52	38.90	37.50	37.85	37.88	38.20	38.50	38.00	37.99
20	20 th Sept	39.13	39.26	39.35	39.21	39.47	39.22	39.27	37.50	37.85	37.88	38.20	38.50	38.45	38.06
21	21 st Sept	38.52	38.28	38.52	38.52	38.52	38.52	38.48	37.50	37.85	37.88	38.20	37.50	38.00	37.82
22	22 nd Sept	39.11	39.24	39.28	39.31	39.12	39.22	39.21	37.50	37.85	37.88	38.20	38.50	38.00	37.99
23	23 rd Sept	39.14	39.22	39.28	39.32	38.52	39.25	39.12	37.57	37.85	37.88	38.20	38.50	38.23	38.04
24	24 th Sept	39.11	39.22	39.22	39.22	38.52	39.23	39.09	37.58	37.85	37.88	38.20	38.50	38.24	38.04
25	25 th Sept	39.10	39.22	39.22	39.22	39.23	39.20	39.20	37.55	37.85	37.88	38.20	38.50	38.35	38.06
26	26 th Sept	39.10	39.22	39.32	39.22	39.32	39.28	39.24	37.55	37.85	37.88	38.20	38.50	38.35	38.06
27	27 th Sept	39.11	39.22	39.22	39.28	39.33	39.25	39.24	37.50	37.85	37.88	38.20	38.50	38.00	37.99
28	28 th Sept	39.55	39.22	39.22	39.24	39.24	39.25	39.29	37.55	37.85	37.88	38.20	38.50	38.27	38.04
29	29 th Sept	39.20	39.22	39.22	39.24	39.25	39.22	39.23	37.50	37.85	37.70	38.20	38.50	38.00	37.96
30	30 th Sept	39.25	39.24	39.22	39.22	39.24	39.25	39.24	37.55	37.35	37.75	38.20	38.50	38.00	37.89
31	1 st Oct	39.26	39.28	39.24	39.24	39.25	39.20	39.25	37.55	37.75	37.80	38.20	38.50	38.00	37.97
32	2 nd Oct	39.25	39.30	39.29	39.29	39.20	39.25	39.26	37.55	37.85	37.88	38.20	38.50	38.00	38.00
33	3 rd Oct	39.28	39.32	39.30	39.20	39.25	39.27	39.27	37.50	37.45	37.68	38.20	38.50	38.00	37.89
34	4 th Oct	38.28	38.33	38.26	38.34	38.38	38.35	38.32	37.20	37.75	37.58	38.20	38.50	38.00	37.87
35	5 th Oct	39.12	39.28	39.27	39.28	39.22	39.20	39.23	37.50	37.65	37.68	38.20	38.50	38.25	37.96
36	6 th Oct	38.16	39.45	39.34	39.22	39.25	39.28	39.12	37.50	37.85	37.38	38.20	37.50	38.10	37.76
37	7 th Oct	38.20	39.40	39.32	39.32	39.38	39.35	39.16	37.50	37.85	37.28	38.20	37.50	38.00	37.72
38	8 th Oct	38.22	39.60	39.12	39.33	39.20	39.25	39.12	37.50	37.85	37.28	38.20	37.50	38.10	37.74
39	9 th Oct	38.22	38.20	39.21	39.29	39.35	39.25	38.92	37.50	37.85	37.48	38.20	37.50	38.10	37.77
40	10 th Oct	38.23	38.22	39.22	38.27	38.30	39.25	38.58	37.50	37.85	37.35	38.20	38.50	38.00	37.90
41	11 th Oct	38.00	38.05	38.02	38.01	38.02	38.03	38.02	37.50	37.85	37.45	38.20	38.50	38.20	37.95
42	12 th Oct	38.58	38.24	39.26	38.40	38.34	38.32	38.52	37.20	37.85	37.45	38.20	38.50	38.00	37.87
43	13 th Oct	38.22	38.26	38.29	38.25	38.28	38.26	38.26	37.30	37.85	37.88	38.20	38.50	38.00	37.96
44	14 th Oct	38.25	38.29	39.33	38.25	38.22	38.23	38.43	37.30	37.85	37.25	38.20	38.50	38.00	37.85
45	15 th Oct	38.10	38.22	38.25	38.15	38.12	38.25	38.18	37.50	37.85	37.88	38.20	38.50	38.00	37.99
46	16 th Oct	38.20	38.55	38.12	38.10	38.25	38.57	38.30	37.65	37.80	37.55	38.00	38.00	38.20	37.87

47	17th Oct	38.10	38.23	38.22	38.15	38.15	38.22	38.18	37.55	37.82	37.56	38.10	37.85	38.10	37.83
Mean ±SE of Rectal Temperature (RT) °C/ gp A								38.93± 0.01							37.91± 0.04

RT: Average Rectal Temperature (° C)

Supplementary Table S4. Physiological assessment: respiratory rate (RR) (Beat Per Minute, BPM) from 1st Sept to 17th Oct- 2023, study duration for each buffalo of the control (Gp A) and modified group (Gp B)

Day no.	Day/month	RR (bpm) buffalo of Gp B						Average RR/ gp A (bpm)	RR (BPM) buffalo of Gp B						Average RR/ gp B (bpm)
		A1	A2	A3	A4	A5	A6		B1	B2	B3	B4	B5	B6	
1	1 st Sept	29	29	28	28	29	30	28.83	24	24	25	25	25	25	24.67
2	2 nd Sept	28	27	28	28	27	28	27.67	23	23	24	24	25	25	24.00
3	3 rd Sept	27	27	29	28	30	29	28.33	24	24	23	25	25	25	24.33
4	4 th Sept	28	30	30	27	28	28	28.50	24	24	24	25	25	25	24.50
5	5 th Sept	29	28	29	29	29	29	28.83	23	24	24	25	25	25	24.33
6	6 th Sept	27	29	28	30	28	29	28.50	22	23	24	24	25	25	23.83
7	7 th Sept	29	29	29	27	28	29	28.50	22	24	24	25	25	24	24.00
8	8 th Sept	29	28	28	30	29	30	29.00	23	23	24	25	25	24	24.00
9	9 th Sept	29	30	28	30	28	30	29.17	22	23	23	24	24	24	23.33
10	10 th Sept	28	29	28	28	28	30	28.50	23	22	24	23	25	24	23.50
11	11 th Sept	29	29	28	28	29	28	28.50	24	23	24	24	24	24	23.83
12	12 th Sept	29	28	29	28	29	28	28.50	23	23	24	24	24	24	23.67
13	13 th Sept	29	29	28	29	28	29	28.67	22	24	23	25	24	24	23.67
14	14 th Sept	27	26	26	27	26	27	26.50	23	23	24	23	24	24	23.50
15	15 th Sept	26	26	26	26	26	27	26.17	22	23	23	24	24	24	23.33
16	16 th Sept	27	26	26	26	26	27	26.33	22	22	23	23	23	24	22.83
17	17 th Sept	25	25	26	25	27	27	25.83	22	23	22	24	23	23	22.83
18	18 th Sept	28	29	29	28	30	30	29.00	24	24	24	24	24	23	23.83
19	19 th Sept	29	30	30	27	30	29	29.17	24	24	24	24	24	23	23.83
20	20 th Sept	28	29	27	27	30	28	28.17	24	24	23	23	24	24	23.67
21	21 st Sept	27	28	27	26	27	28	27.17	23	24	23	22	24	25	23.50
22	22 nd Sept	29	29	29	28	30	30	29.17	24	23	24	23	23	24	23.50
23	23 rd Sept	29	29	28	29	29	29	28.83	23	23	24	24	24	23	23.50
24	24 th Sept	28	29	29	29	29	29	28.83	23	22	24	25	24	24	23.67

25	25 th Sept	28	29	28	28	29	29	28.50	22	23	24	24	24	24	23.50
26	26 th Sept	29	30	29	29	30	29	29.33	21	24	23	24	25	23	23.33
27	27 th Sept	29	29	29	29	30	29	29.17	23	24	24	24	23	23	23.50
28	28 th Sept	29	29	29	29	29	28	28.83	24	25	23	24	24	25	24.17
29	29 th Sept	30	30	29	29	30	30	29.67	24	25	22	24	24	25	24.00
30	30 th Sept	29	30	30	29	30	29	29.50	24	24	24	22	24	25	23.83
31	1 st Oct	29	29	29	30	29	30	29.33	22	24	23	23	24	25	23.50
32	2 nd Oct	29	29	29	28	29	29	28.83	22	23	24	25	24	23	23.50
33	3 rd Oct	29	29	29	28	29	29	28.83	23	24	24	24	25	24	24.00
34	4 th Oct	27	27	27	27	27	27	27.00	24	25	24	24	24	25	24.33
35	5 th Oct	27	28	28	27	27	27	27.33	24	25	24	24	25	24	24.33
36	6 th Oct	27	27	27	27	27	28	27.17	22	24	23	24	23	23	23.17
37	7 th Oct	27	27	27	26	26	26	26.50	21	24	23	23	22	22	22.50
38	8 th Oct	27	27	26	27	27	27	26.83	23	24	22	23	23	23	23.00
39	9 th Oct	28	27	27	27	27	26	27.00	22	23	24	23	23	23	23.00
40	10 th Oct	27	27	27	27	26	25	26.50	24	24	23	25	25	24	24.17
41	11 th Oct	25	26	26	26	26	27	26.00	24	25	25	24	25	25	24.67
42	12 th Oct	27	27	27	26	27	27	26.83	23	23	24	24	24	25	23.83
43	13 th Oct	28	27	26	27	27	27	27.00	22	23	23	23	24	25	23.33
44	14 th Oct	27	27	27	27	26	26	26.67	23	25	23	24	24	24	23.83
45	15 th Oct	27	27	28	27	27	27	27.17	24	23	25	24	24	25	24.17
46	16 th Oct	27	27	27	27	27	26	26.83	25	24	24	23	24	24	24.00
47	17 th Oct	27	27	26	26	26	27	26.50	24	24	24	24	24	25	24.17
Mean \pm SE of RR (bpm)/ gp A								27.96\pm 0.16	Mean \pm SE of RR (bpm)/ gp B						23.73 \pm 0.07

RR (bpm): Respiratory rate (beat per minute)