Supplemental Materials Tables

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This document contains tables for the model-based analysis described in "A model-based analysis of autonomic nervous function in response to the Valsalva maneuver". Table 1 summarizes the control subject data. Tables 2 - 4 display the individual patient data for the control subjects, including the patient number, age, sex, viable Valsalva maneuver (VM), baseline blood pressure (\bar{P}) , baseline heart rate (\bar{H}) , intrinsic heart rate (H_I) , minimum heart rate due to respiration $(H_{R,m})$, maximal heart rate due to respiration $(H_{R,m})$, length of the VM, and average forced expiration (FE) during the VM. The clinical ratios for each data set are shown as well. Tables 5 - 7 display the optimal parameter values for parameters B, $\tau_{p,b}$, $\tau_{p,r}$, τ_s , $H_{p,b}$, $H_{p,r}$, and H_s for the control subjects. Optimized parameter values that were not identifiable, *i.e.* the parameter hit either its upper or lower bound, are indicated with asterisks. Table 8 displays the patient data for patients with autonomic dysfunction and Table 9 displays the optimized parameter values. Table 10 shows the results of the test for identifiability computed by varying the optimized parameter values by $\pm 20\%$ of their nominal value and re-optimizing to the data.

Patient	Age	Sex	# VMs	Miscellaneous	Patient	Age	Sex	# VMs	Miscellaneous
1	41	Female	4		19	N/A	Female	N/A	Omitted due to pregnancy
2	21	Female	5		20	43	Female	1	
3	21	Female	2		21	45	Male	3	
4	25	Female	6		22	26	Female	3	
5	N/A	N/A	5	Assumed male age 32	23	28	Male	4	
6	N/A	N/A	3	Assumed female age 32	24	21	Female	5	
7	29	Female	3		25	22	Female	3	
8	30	Female	4		26	21	Female	2	
9	25	Female	6		27	20	Male	4	
10	30	Male	3		28	27	Female	4	
11	27	Male	5		29	27	Male	4	
12	27	Female	3		30	58	Male	4	
13	21	Female	4		31	28	Male	3	
14	20	Male	4		32	27	Female	5	
15	27	Female	3		33	63	Male	2	
16	38	Female	5		34	61	Male	4	
17	52	Female	4		35	39	Male	3	
18	51	Female	5		36	29	Female	N/A	Omitted due to noisy data
					37	43	Female	N/A	Omitted due to prenancy

Table 1: Control subject data.

1 F 2 F 3 F 4 F	F F NA	22 21 25 N/A 29	VM 2 3 4 6 2 3 6 7 8 4 8 2 3 4 6 7 8 1 3 4 7 8 2 5 7 3 4	P 127 131 132 130 144 140 149 144 143 123 115 99 100 87 77 81 93 123 127 131 118 123 98 109 110 125 120 125 120 125 120 125 120 125 120 125 120 125 120 125 120 125 120 125 120 125 120 125 120 125 120 125 120 125 120 125 120 125 120 125 120 125 120 125 120 125 120 125 120 125 120 125 120 125 120 125 120 125 120 125 120 125 120 125 120 125 120 125 120 125 120 125 120 125 120 125 120 125 120 125 120 125 120 125 120 125 120 125 120 125 120 125 120 125 120 125 120 125 120 125 120 125 120 125 120 125 120 125 120 125 120 125 120 125 120 125 120 125 120 125 120 125 120 125 120 125 120 125 120 125 120 125 120 125 120 125 120 125 120 125 120 125 120 125 120 125 120 125 120 125 120 125 120 125 120 125 120 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125 125	# 92 90 85 89 102 96 97 92 91 93 78 84 84 82 89 110 103 101 103 108 84 80 85 86	H _I 94.63 94.63 94.63 94.63 94.63 106.03 106.03 106.03 106.03 106.03 103.75 103.75 103.75 103.75 103.75 103.62 100.62 100.62 103.47 108.07 99.76 99.76 99.76	$H_{R,m}$ 76 84 80 84 95 77 81 84 80 70 68 73 67 71 70 64 79 104 97 91 97 104 79 68 76	H _{R,M} 105 101 92 96 115 120 112 116 105 109 94 103 103 96 98 101 101 116 111 110 116 96 88 92	15.1 14.5 14.1 13.9 14 14 14 14.5 15.2 14 16.3 14.6 14.7 14.1 14.5 16.3 14 15.2 14.5 16.3 14 15.2 14.5 13.4 14 13.4	37 38 39 38 35 37 39 38 41 39 38 41 39 38 37 36 37 35 37 37 37 36 37 37	α 5.30 8.30 2.90 2.60 6.20 11.60 11.30 12.00 6.20 11.60 16.90 4.90 8.70 13.70 11.00 6.90 10.40 4.00 3.50 3.90 3.60 4.40 6.80 5.70	β 6.90 8.80 9.90 6.10 6.20 5.30 7.90 4.00 7.70 15.20 0.00 8.80 15.20 4.40 7.20 7.50 7.20 5.50 8.70 7.00 4.60 4.30 6.40 6.50	7 1.80 1.60 1.80 1.40 1.90 1.80 2.10 1.80 1.90 2.10 1.50 1.70 1.10 1.40 1.50 1.70 1.50 1.40 1.40 1.40 1.30 2.70 1.10
2 F 3 F 4 F 5 N. 6 N. 7 F 8 F	F F NA	22 21 25 N/A	3 4 6 2 3 6 7 8 4 8 2 3 4 6 7 8 1 3 4 7 8 8 2 3 4 7 8 8 7 8 8 7 8 8 8 7 8 8 8 7 8 8 8 7 8 8 8 7 8 8 8 8 7 8 8 8 8 7 8 8 7 8 8 7 7 8 8 8 7 7 8 8 7 7 8 8 7 7 8 7 7 7 7 8 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	131 132 130 144 140 149 144 143 123 115 99 100 87 77 81 93 123 127 131 118 123 98 109 110 125	90 85 89 102 96 97 92 91 93 78 90 87 84 84 82 89 110 103 101 103 108 84 80 85	94.63 94.63 94.63 106.03 106.03 106.03 106.03 106.03 106.03 103.75 103.75 103.75 103.75 109.85 102.62 100.62 103.47 108.07 99.76 99.76	84 80 84 95 77 81 84 80 70 68 73 67 71 70 64 79 104 97 104 79 68 76	101 92 96 115 120 112 116 105 109 94 103 103 96 98 101 101 116 111 110 116 96 88	14.5 14.1 13.9 14 14 14 13.9 14.1 14 14.5 15.2 14 16.3 14.6 14.6 14.7 14.1 14.5 16.3 14 15.2 14.5 13.4 14	38 39 38 35 37 39 38 41 39 38 37 36 37 38 37 37 35 37 37 37 37 37 37 37 37 37 37	8.30 2.90 2.60 6.20 11.60 11.30 12.00 6.20 11.60 16.90 4.90 8.70 13.70 11.00 6.90 10.40 4.00 3.50 3.90 3.60 4.40 6.80 5.70	8.80 9.90 6.10 6.20 5.30 7.90 4.00 7.70 15.20 0.00 8.80 15.20 4.40 7.20 7.50 7.20 5.50 8.70 7.00 4.60 4.30 6.40 6.50	1.60 1.80 1.40 1.90 1.80 2.10 1.80 1.90 2.10 1.50 1.70 1.50 1.70 1.50 1.40 1.40 1.30 2.70 1.70
3 F 4 F 5 N. 7 F 8 F	F F	21 25 N/A	4 6 2 3 6 7 8 4 8 2 3 4 6 7 8 1 3 4 7 8 8 2 3 4 7 8 7 8 8 7 8 8 7 8 7 8 8 7 8 8 7 8 8 7 8 7 8 8 7 8 7 8 8 7 8 7 8 7 8 7 8 7 8 7 8 7 7 8 7 7 8 7 7 8 7 7 7 7 8 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	132 130 144 140 149 144 143 123 115 99 100 87 77 81 93 123 127 131 118 123 98 109 110	85 89 102 96 97 92 91 93 78 90 87 84 84 82 89 110 103 101 103 108 84 80 85	94.63 94.63 106.03 106.03 106.03 106.03 106.03 106.03 103.75 103.75 103.75 103.75 103.75 109.85 102.62 100.62 103.47 108.07 99.76 99.76	80 84 95 77 81 84 80 70 68 73 67 71 70 64 79 104 97 91 97 104	92 96 115 120 112 116 105 109 94 103 103 96 98 101 101 116 111 110 116 88	14.1 13.9 14 14 13.9 14.1 14.5 15.2 14 16.3 14.6 14.6 14.7 14.1 14.5 16.3 14 15.2 14.1 14.5 16.3	39 38 35 37 39 38 41 39 38 37 36 37 40 37 38 37 37 37 37 37 37 37 37 37 37	2.90 2.60 6.20 11.60 11.30 12.00 6.20 11.60 16.90 4.90 8.70 13.70 11.00 6.90 10.40 4.00 3.50 3.90 3.60 4.40 6.80 5.70	9.90 6.10 6.20 5.30 7.90 4.00 7.70 15.20 0.00 8.80 15.20 4.40 7.20 7.50 7.20 5.50 8.70 7.00 4.60 4.30 6.40 6.50	1.80 1.40 1.90 1.80 2.10 1.80 1.90 2.10 1.50 1.70 1.50 1.70 1.50 1.40 1.40 1.30 2.70
3 F 4 F 5 N. 7 F 8 F	F F	21 25 N/A	6 2 3 6 7 8 4 8 2 3 4 6 7 8 1 3 4 7 8 8 2 3 4 7 8 7 8 8 7 8 8 7 8 7 8 8 7 8 8 7 8 8 7 8 7 8 8 7 8 7 8 8 7 8 7 8 7 8 7 8 7 8 7 7 8 7 8 7 7 8 7 7 8 7 7 8 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	130 144 140 149 144 143 123 115 99 100 87 77 81 93 123 127 131 118 123 98 109 110 125	89 102 96 97 92 91 93 78 90 87 84 82 89 110 103 101 103 108 84 80 85 86	94.63 106.03 106.03 106.03 106.03 106.03 106.03 103.75 103.75 103.75 103.75 103.75 109.85 102.62 100.62 103.47 108.07 99.76 99.76	84 95 77 81 84 80 70 68 73 67 71 70 64 79 104 97 91 97 104 79 68 76	96 115 120 112 116 105 109 94 103 103 96 98 101 101 116 111 110 116 96 88	13.9 14 14 13.9 14.1 14 14.5 15.2 14 16.3 14.6 14.6 14.7 14.1 14.5 16.3 14 15.2 14.5 13.4 14	38 35 37 39 38 41 39 38 37 36 37 40 37 38 37 37 37 37 36 37	2.60 6.20 11.60 11.30 12.00 6.20 11.60 16.90 4.90 8.70 13.70 11.00 6.90 10.40 4.00 3.50 3.90 3.60 4.40 6.80 5.70	6.10 6.20 5.30 7.90 4.00 7.70 15.20 0.00 8.80 15.20 4.40 7.20 7.50 7.20 5.50 8.70 7.00 4.60 4.30 6.40 6.50	1.40 1.90 1.80 2.10 1.80 1.90 2.10 1.00 1.50 1.70 1.50 1.70 1.40 1.40 1.30 2.70 1.70
3 F 4 F 5 N. 7 F 8 F	F F	21 25 N/A	2 3 6 7 8 4 8 2 3 4 6 7 8 1 3 4 7 8 2 5 7 8	144 140 149 144 143 123 115 99 100 87 77 81 93 123 127 131 118 123 98 109 110	102 96 97 92 91 93 78 90 87 84 84 82 89 110 103 101 103 108 84 80 85	106.03 106.03 106.03 106.03 106.03 106.03 103.75 103.75 103.75 103.75 103.75 109.85 102.62 100.62 103.47 108.07 99.76 99.76	95 77 81 84 80 70 68 73 67 71 70 64 79 104 97 91 97 104	115 120 112 116 105 109 94 103 103 96 98 101 101 116 111 110 116 96 88	14 14 13.9 14.1 14 14.5 15.2 14 16.3 14.6 14.6 14.7 14.1 14.5 16.3 14 15.2 14.5 13.4	35 37 39 38 41 39 38 37 36 37 40 37 38 37 35 37 37 37 37 37 37 37	6.20 11.60 11.30 12.00 6.20 11.60 16.90 4.90 8.70 13.70 11.00 6.90 10.40 4.00 3.50 3.90 3.60 4.40 6.80 5.70	6.20 5.30 7.90 4.00 7.70 15.20 0.00 8.80 15.20 4.40 7.20 7.50 7.20 5.50 8.70 7.00 4.60 4.30 6.40 6.50	1.90 1.80 2.10 1.80 1.90 2.10 1.00 1.50 1.70 1.40 1.50 1.40 1.40 1.30 2.70 1.70
3 F 4 F 5 N. 7 F 8 F	F F	21 25 N/A	3 6 7 8 4 8 2 3 4 6 7 8 1 3 4 7 8 2 5 7 8	140 149 144 143 123 115 99 100 87 77 81 93 123 127 131 118 123 98 109 110	96 97 92 91 93 78 90 87 84 84 82 89 110 103 101 103 108 84 80 85	106.03 106.03 106.03 106.03 106.03 106.03 103.75 103.75 103.75 103.75 102.62 100.62 103.47 108.07 99.76 99.76	77 81 84 80 70 68 73 67 71 70 64 79 104 97 91 97 104 79 68 76	120 112 116 105 109 94 103 103 96 98 101 101 116 111 110 116 88	14 13.9 14.1 14 14.5 15.2 14 16.3 14.6 14.7 14.1 14.5 16.3 14 15.2 14.5 13.4 14	37 39 38 41 39 38 37 36 37 40 37 38 37 35 37 37 37 37 37 37	11.60 11.30 12.00 6.20 11.60 16.90 4.90 8.70 13.70 11.00 6.90 10.40 4.00 3.50 3.90 3.60 4.40 6.80 5.70	5.30 7.90 4.00 7.70 15.20 0.00 8.80 15.20 4.40 7.20 7.50 7.20 5.50 8.70 7.00 4.60 4.30 6.40 6.50	1.80 2.10 1.80 1.90 2.10 1.00 1.50 1.70 1.40 1.50 1.40 1.40 1.30 2.70 1.70
4 F 5 N. 7 F 8 F	F NA	25 N/A	6 7 8 4 8 2 3 4 6 7 8 1 3 4 7 8 2 5 7 7 8 7 7 8 7 7 7 8 7 7 7 7 7 7 7 7 7	149 144 143 123 115 99 100 87 77 81 93 123 127 131 118 123 98 109 110 125	97 92 91 93 78 90 87 84 84 82 89 110 103 101 103 108 84 80 85	106.03 106.03 106.03 106.03 106.03 103.75 103.75 103.75 103.75 103.75 109.85 102.62 100.62 103.47 108.07 99.76 99.76	81 84 80 70 68 73 67 71 70 64 79 104 97 91 97 104 79 68 76	112 116 105 109 94 103 103 96 98 101 101 116 111 110 116 96 88	13.9 14.1 14 14.5 15.2 14 16.3 14.6 14.7 14.1 14.5 16.3 14 15.2 14.5 13.4 14	39 38 41 39 38 37 36 37 40 37 38 37 35 37 37 37 37 37	11.30 12.00 6.20 11.60 16.90 4.90 8.70 13.70 11.00 6.90 10.40 4.00 3.50 3.90 3.60 4.40 6.80 5.70	7.90 4.00 7.70 15.20 0.00 8.80 15.20 4.40 7.20 7.50 7.20 5.50 8.70 7.00 4.60 4.30 6.40 6.50	2.10 1.80 1.90 2.10 1.50 1.70 1.10 1.40 1.70 1.50 1.40 1.40 1.30 2.70
4 F 5 N. 7 F 8 F	F NA	25 N/A	7 8 4 8 2 3 4 6 7 8 1 3 4 7 8 2 5 7 7 8 7 7 8 7 7 7 8 7 7 7 7 7 7 7 7 7	144 143 123 115 99 100 87 77 81 93 123 127 131 118 123 98 109 110 125	92 91 93 78 90 87 84 84 82 89 110 103 101 103 108 84 80 85	106.03 106.03 106.03 106.03 103.75 103.75 103.75 103.75 103.75 109.85 102.62 100.62 103.47 108.07 99.76 99.76	84 80 70 68 73 67 71 70 64 79 104 97 91 97 104 79 68 76	116 105 109 94 103 103 96 98 101 101 116 111 110 116 96 88	14.1 14.5 15.2 14 16.3 14.6 14.6 14.7 14.1 14.5 16.3 14 15.2 14.5 13.4 14	38 41 39 38 37 36 37 40 37 38 37 35 37 37 37 36 37 37 37 37 37 37 37 37 37 37	12.00 6.20 11.60 16.90 4.90 8.70 13.70 11.00 6.90 10.40 4.00 3.50 3.90 3.60 4.40 6.80 5.70	4.00 7.70 15.20 0.00 8.80 15.20 4.40 7.20 7.50 7.20 5.50 8.70 7.00 4.60 4.30 6.40 6.50	1.80 1.90 2.10 1.00 1.50 1.70 1.10 1.40 1.50 1.50 1.40 1.40 1.30 2.70 1.70
4 F 5 N. 7 F 8 F	F NA	25 N/A	8 4 8 2 3 4 6 7 8 1 3 4 7 8 2 5 7 7 8	143 123 115 99 100 87 77 81 93 123 127 131 118 123 98 109 110 125	91 93 78 90 87 84 84 82 89 110 103 101 103 108 84 80 85 86	106.03 106.03 106.03 103.75 103.75 103.75 103.75 103.75 109.85 102.62 100.62 103.47 108.07 99.76 99.76	80 70 68 73 67 71 70 64 79 104 97 91 97 104 79 68 76	105 109 94 103 103 96 98 101 101 116 111 110 116 96 88	14 14.5 15.2 14 16.3 14.6 14.7 14.1 14.5 16.3 14 15.2 14.5 13.4 14	41 39 38 37 36 37 40 37 38 37 35 37 37 36 37 37 37 37 37 37 37 37 37 37	6.20 11.60 16.90 4.90 8.70 13.70 11.00 6.90 10.40 4.00 3.50 3.90 3.60 4.40 6.80 5.70	7.70 15.20 0.00 8.80 15.20 4.40 7.20 7.50 7.20 5.50 8.70 7.00 4.60 4.30 6.40 6.50	1.90 2.10 1.00 1.50 1.70 1.10 1.40 1.50 1.50 1.40 1.40 1.30 2.70 1.70
4 F 5 N. 7 F 8 F	F NA	25 N/A	4 8 2 3 4 6 7 8 1 3 4 7 8 2 5 7 7	123 115 99 100 87 77 81 93 123 127 131 118 123 98 109 110	93 78 90 87 84 84 82 89 110 103 101 103 108 84 80 85	106.03 106.03 103.75 103.75 103.75 103.75 103.75 103.75 109.85 102.62 100.62 103.47 108.07 99.76 99.76	70 68 73 67 71 70 64 79 104 97 91 97 104 79 68 76	109 94 103 103 96 98 101 101 116 111 110 116 96 88	14.5 15.2 14 16.3 14.6 14.6 14.7 14.1 14.5 16.3 14 15.2 14.5	39 38 37 36 37 40 37 38 37 35 37 37 36 37	11.60 16.90 4.90 8.70 13.70 11.00 6.90 10.40 4.00 3.50 3.90 3.60 4.40 6.80 5.70	15.20 0.00 8.80 15.20 4.40 7.20 7.50 7.20 5.50 8.70 7.00 4.60 4.30 6.40 6.50	2.10 1.00 1.50 1.70 1.10 1.40 1.50 1.50 1.40 1.40 1.30 2.70 1.70
4 F 5 N. 7 F 8 F	F NA	25 N/A	8 2 3 4 6 7 8 1 3 4 7 8 2 5 7	115 99 100 87 77 81 93 123 127 131 118 123 98 109 110 125	78 90 87 84 84 82 89 110 103 101 103 108 84 80 85 86	106.03 103.75 103.75 103.75 103.75 103.75 103.75 109.85 102.62 100.62 103.47 108.07 99.76 99.76 99.76	68 73 67 71 70 64 79 104 97 91 97 104 79 68 76	94 103 103 96 98 101 101 116 111 110 116 96 88	15.2 14 16.3 14.6 14.6 14.7 14.1 14.5 16.3 14 15.2 14.5 13.4 14	38 37 36 37 40 37 38 37 35 37 37 36 37	16.90 4.90 8.70 13.70 11.00 6.90 10.40 4.00 3.50 3.90 3.60 4.40 6.80 5.70	0.00 8.80 15.20 4.40 7.20 7.50 7.20 5.50 8.70 7.00 4.60 4.30 6.40 6.50	1.00 1.50 1.70 1.10 1.40 1.50 1.50 1.40 1.40 1.30 2.70 1.70
5 N. 6 N. 7 F 8 F	NA NA	N/A	2 3 4 6 7 8 1 3 4 7 8 2 5 7	99 100 87 77 81 93 123 127 131 118 123 98 109 110	90 87 84 84 82 89 110 103 101 103 108 84 80 85	103.75 103.75 103.75 103.75 103.75 103.75 109.85 102.62 100.62 103.47 108.07 99.76 99.76	73 67 71 70 64 79 104 97 91 97 104 79 68 76	103 103 96 98 101 101 116 111 110 116 96 88	14 16.3 14.6 14.6 14.7 14.1 14.5 16.3 14 15.2 14.5	37 36 37 40 37 38 37 35 37 37 37 36 37	4.90 8.70 13.70 11.00 6.90 10.40 4.00 3.50 3.90 3.60 4.40 6.80 5.70	8.80 15.20 4.40 7.20 7.50 7.20 5.50 8.70 7.00 4.60 4.30 6.40 6.50	1.50 1.70 1.10 1.40 1.70 1.50 1.70 1.40 1.40 1.30 2.70 1.70
5 N. 6 N. 7 F 8 F	NA NA	N/A	3 4 6 7 8 1 3 4 7 8 2 5 7	100 87 77 81 93 123 127 131 118 123 98 109 110	87 84 84 82 89 110 103 101 103 108 84 80 85	103.75 103.75 103.75 103.75 103.75 109.85 102.62 100.62 103.47 108.07 99.76 99.76	67 71 70 64 79 104 97 91 97 104 79 68 76	103 96 98 101 101 116 111 110 116 96 88	16.3 14.6 14.6 14.7 14.1 14.5 16.3 14 15.2 14.5	36 37 40 37 38 37 35 37 37 37 36 37	8.70 13.70 11.00 6.90 10.40 4.00 3.50 3.90 3.60 4.40 6.80 5.70	15.20 4.40 7.20 7.50 7.20 5.50 8.70 7.00 4.60 4.30 6.40 6.50	1.70 1.10 1.40 1.70 1.50 1.50 1.40 1.30 2.70 1.70
6 N. 7 F 8 F	NA	N/A	4 6 7 8 1 3 4 7 8 2 5 7 3	87 77 81 93 123 127 131 118 123 98 109 110	84 84 82 89 110 103 101 103 108 84 80 85	103.75 103.75 103.75 103.75 109.85 102.62 100.62 103.47 108.07 99.76 99.76	71 70 64 79 104 97 91 97 104 79 68 76	96 98 101 101 116 111 111 110 116 96 88	14.6 14.6 14.7 14.1 14.5 16.3 14 15.2 14.5	37 40 37 38 37 35 37 37 37 36 37	13.70 11.00 6.90 10.40 4.00 3.50 3.90 3.60 4.40 6.80 5.70	4.40 7.20 7.50 7.20 5.50 8.70 7.00 4.60 4.30 6.40 6.50	1.10 1.40 1.70 1.50 1.70 1.50 1.40 1.30 2.70 1.70
6 N. 7 F 8 F	NA	N/A	6 7 8 1 3 4 7 8 2 5 7 3	77 81 93 123 127 131 118 123 98 109 110	84 82 89 110 103 101 103 108 84 80 85	103.75 103.75 103.75 109.85 102.62 100.62 103.47 108.07 99.76 99.76	70 64 79 104 97 91 97 104 79 68 76	98 101 101 116 111 111 110 116 96 88	14.6 14.7 14.1 14.5 16.3 14 15.2 14.5 13.4	40 37 38 37 35 37 37 37 36 37	11.00 6.90 10.40 4.00 3.50 3.90 3.60 4.40 6.80 5.70	7.20 7.50 7.20 5.50 8.70 7.00 4.60 4.30 6.40 6.50	1.40 1.70 1.50 1.70 1.50 1.40 1.40 1.30 2.70 1.70
6 N. 7 F 8 F	NA	N/A	7 8 1 3 4 7 8 2 5 7	81 93 123 127 131 118 123 98 109 110	82 89 110 103 101 103 108 84 80 85	103.75 103.75 109.85 102.62 100.62 103.47 108.07 99.76 99.76	64 79 104 97 91 97 104 79 68 76	101 101 116 111 111 110 116 96 88	14.7 14.1 14.5 16.3 14 15.2 14.5 13.4 14	37 38 37 35 37 37 37 36 37	6.90 10.40 4.00 3.50 3.90 3.60 4.40 6.80 5.70	7.50 7.20 5.50 8.70 7.00 4.60 4.30 6.40 6.50	1.70 1.50 1.70 1.50 1.40 1.40 1.30 2.70 1.70
6 N. 7 F 8 F	NA	N/A	8 1 3 4 7 8 2 5 7	93 123 127 131 118 123 98 109 110	89 110 103 101 103 108 84 80 85	103.75 109.85 102.62 100.62 103.47 108.07 99.76 99.76	79 104 97 91 97 104 79 68 76	101 116 111 111 110 116 96 88	14.1 14.5 16.3 14 15.2 14.5 13.4 14	38 37 35 37 37 37 36 37	10.40 4.00 3.50 3.90 3.60 4.40 6.80 5.70	7.20 5.50 8.70 7.00 4.60 4.30 6.40 6.50	1.50 1.70 1.50 1.40 1.40 1.30 2.70 1.70
6 N. 7 F 8 F	NA	N/A	1 3 4 7 8 2 5 7	123 127 131 118 123 98 109 110	110 103 101 103 108 84 80 85 86	109.85 102.62 100.62 103.47 108.07 99.76 99.76 99.76	104 97 91 97 104 79 68 76	116 111 111 110 116 96 88	14.5 16.3 14 15.2 14.5 13.4 14	37 35 37 37 37 36 37	4.00 3.50 3.90 3.60 4.40 6.80 5.70	5.50 8.70 7.00 4.60 4.30 6.40 6.50	1.70 1.50 1.40 1.40 1.30 2.70 1.70
6 N. 7 F 8 F	NA	N/A	3 4 7 8 2 5 7 3	127 131 118 123 98 109 110 125	103 101 103 108 84 80 85 86	102.62 100.62 103.47 108.07 99.76 99.76 99.76	97 91 97 104 79 68 76	111 111 110 116 96 88	16.3 14 15.2 14.5 13.4 14	35 37 37 37 36 37	3.50 3.90 3.60 4.40 6.80 5.70	8.70 7.00 4.60 4.30 6.40 6.50	1.50 1.40 1.40 1.30 2.70 1.70
7 F 8 F			4 7 8 2 5 7 3	131 118 123 98 109 110 125	101 103 108 84 80 85 86	100.62 103.47 108.07 99.76 99.76 99.76	91 97 104 79 68 76	111 110 116 96 88	14 15.2 14.5 13.4 14	37 37 37 36 37	3.90 3.60 4.40 6.80 5.70	7.00 4.60 4.30 6.40 6.50	1.40 1.40 1.30 2.70 1.70
7 F 8 F			7 8 2 5 7 3	118 123 98 109 110 125	103 108 84 80 85	103.47 108.07 99.76 99.76 99.76	97 104 79 68 76	110 116 96 88	15.2 14.5 13.4 14	37 37 36 37	3.60 4.40 6.80 5.70	4.60 4.30 6.40 6.50	1.40 1.30 2.70 1.70
7 F 8 F			8 2 5 7 3	98 109 110 125	108 84 80 85 86	108.07 99.76 99.76 99.76	104 79 68 76	96 88	14.5 13.4 14	37 36 37	4.40 6.80 5.70	4.30 6.40 6.50	1.30 2.70 1.70
7 F 8 F			2 5 7 3	98 109 110 125	84 80 85 86	99.76 99.76 99.76	79 68 76	96 88	13.4 14	36 37	6.80 5.70	6.40 6.50	2.70 1.70
7 F 8 F			5 7 3	109 110 125	80 85 86	99.76 99.76	68 76	88	14	37	5.70	6.50	1.70
9 F	F	29	7	110 125	85 86	99.76	76				I .		
9 F	F	29	3	125	86			92					
9 F	F	29		1		101.47					6.50	2.50	1.60
9 F					0.0		71	91	14	39	9.30	6.30	1.30
9 F				129	90	101.47	72	99	12.9	38	7.80	4.60	1.30
9 F	-	20	7	142	80	101.47	67	95	14	37	10.00	0.70	1.10
	F	30	3	117	88	100.90	82	98	13.4	37	8.10	2.10	1.20
			4	118	82	100.90	73	91	12.8	37	7.10	11.70	1.20
			5	119	81	100.90	70	90	13.9	38	9.70	1.70	1.10
	T7	25	3	117	93	100.90	78	105	13.4	36	8.60	7.60	1.30
10 M	Г	23		108		103.75	83	112	14.5		2.70	6.50	2.40
10 N			4	108	96	103.75	88	104	14.6	37	3.50	8.30	2.60
10 N			5	114	100	103.75	75	109	14	36	3.90	6.30	2.00
10 M			8 9	116 107	99 96	103.75 103.75	88	109 103	12.8 13.9	32 37	3.20 5.40	5.30 5.10	1.60 2.00
10 N			10	1114	90 98		90 89	103	13.9	35	4.40	3.30	1.50
10 IV	N	30				103.75			14.6				1.30
	IVI	30	4 5	116 112	72 65	100.90	61 54	84 75	14.6	38 37	3.60 1.70	15.30 24.40	1.70
			7	112	70	100.90	63	73 77	14.5	37	4.50	24.40	1.80
11 N	M	27	5	124	87	102.61	73	95	13.4	38	7.10	20.40	1.80
11 IV	IVI	21	6	110	74	102.61	61	95 86	13.4	38	7.10	15.60	2.10
			7	110	75	102.61	64	85	13.4	32	5.30	12.00	1.70
			8	118	82	102.61	69	98	13.4	39	6.60	21.90	2.30
			10	104	69	102.61	54	80	13.4	38	5.60	11.40	2.30
12 F	F	27	7	124	75	102.61	72	80	14	34	3.80	8.30	1.50
1,2 [1.	41	8	124	73 77	102.61	68	88	15.2	38	7.70	5.50	1.50
			9	115	83	102.61	71	92	13.2	36	1.90	3.80	1.30
13 F		21	4	145	80	106.03	67	99	13.5	37	7.80	12.60	2.10
10 1	F	∠ 1	5	146	74	106.03	61	93	14.6	35	4.70	21.40	2.10
	F		6	144	72	106.03	62	93 86	14.0	33 37	4.70	14.80	1.90
	F		U	144	82	106.03	63	96	12.9	36	4.70	13.10	2.60

Table 2: Individual patient data and clinical ratios for control subjects 1-13.

							Patie	ent Data			Cli	nical Rat	ios
Patient	Sex	Age	VM	Ē	\bar{H}	H_I	$H_{R,m}$	$H_{R,M}$	Length VM	Avg FE	α	β	γ
14	M	20	3	133	90	106.60	81	100	13.9	36	2.70	6.20	1.20
			5	128	81	106.60	73	89	14	37	1.20	8.00	1.90
			6	121	81	106.60	72	99	13.9	38	5.10	6.40	1.70
			7	135	84	106.60	76	96	12.9	38	2.60	9.40	1.50
15	F	27	6	117	60	102.61	54	89	15.1	41	0.50	52.10	2.20
			7	118	66	102.61	51	77	14	38	2.50	50.10	2.20
			8	114	56	102.61	49	80	14	39	2.70	33.10	2.20
16	F	38	1	113	66	96.34	57	85	14.5	37	0.10	25.20	1.60
			2	121	68	96.34	59	76	15.1	37	5.50	11.20	1.40
			3	125	73	96.34	64	83	14.6	36	3.50	18.20	1.90
			4	130	66	96.34	57	83	14.5	39	3.70	22.90	2.30
			6	126	67	96.34	56	78	14.6	38	5.50	18.50	1.80
17	F	52	3	107	73	88.36	66	85	15.7	38	3.10	24.80	2.20
			5	103	79	88.36	74	89	15.7	36	4.30	18.60	2.20
			6	103	83	88.36	73	90	15.7	39	4.40	16.90	2.40
			7	103	79	88.36	73	90	15.2	38	3.40	15.40	2.10
18	F	51	2	104	55	88.93	51	64	14.6	36	1.80	18.20	1.40
			4	107	55	88.93	51	60	13.4	37	1.80	15.80	1.60
			5	108	51	88.93	48	61	13.9	37	1.00	30.30	1.50
			6	102	56	88.93	50	66	13.5	40	0.80	17.90	1.50
			7	102	56	88.93	51	62	13.9	38	1.10	13.80	1.60
20	F	43	5	123	68	93.49	61	78	12.8	38	7.00	10.50	1.40
21	M	45	4	151	54	92.35	51	67	12.3	38	1.50	7.40	1.30
			6	166	58	92.35	50	63	13.5	37	5.10	9.50	1.20
			8	153	59	92.35	55	68	13.9	37	5.60	10.10	1.40
22	F	26	4	137	84	103.18	71	95	14.6	37	4.50	4.10	1.20
			5	132	82	103.18	72	93	14	35	7.80	5.90	1.60
		20	6	111	84	103.18	73	93	14.1	35	1.30	5.90	1.40
23	M	28	1	120	84	102.04	69	92	15.2	38	7.60	13.80	1.80
			2	125	83	102.04	77	91	13.4	38	8.20	13.30	1.70
			3	132	74	102.04	64	88	14.1	37	3.70	34.30	2.10
24	г	21	6	127	78	102.04	67	89	14	37	2.10	28.30	2.20
24	F	21	2	129	73	106.03	61	86	13.4	37	3.50	14.20	1.60
			3	119	78	106.03	63	93	13.3	38	5.90	10.20	1.70
			4	119	70	106.03	57	81 88	13.4	35	0.50	23.10	1.80
			5 7	116 119	75 72	106.03 106.03	64 62	88	12.8 13.4	37 39	17.10 2.80	25.20 61.90	1.70 1.70
25	F	22	2	133	79	105.46	71	92	13.4	37	5.80	4.60	1.70
23	Г	22							13.4				1.50
			3 5	129 129	73 73	105.46 105.46	67 65	85 89	13.4	36 37	3.20 4.50	12.30 18.20	1.70
26	F	21	<i>7</i>	153	73 70	105.40	53	88	14.5	38	3.50	23.80	1.40
20	1	21	8	153	71	106.03	58	88	14.5	40	6.10	16.10	1.30
27	M	20	2	161	73	106.60	64	84	13.9	35	9.40	14.10	1.60
21	1V1	20	3	148	73 74	106.60	61	83	13.9	36	7.80	12.60	1.90
			5	153	66	106.60	57	74	14	37	2.90	13.80	1.80
			6	172	69	106.60	55	86	13.4	37	7.90	13.70	1.90
28	F	27	1	126	100	102.61	94	110	12.9	36	3.10	8.40	1.90
20	1.	21	3	119	104	102.01	96	109	13.3	38	12.30	8.70	1.90
			4	120	92	103.50	82	106	13.4	35	2.70	14.00	1.50
			5	118	95	102.61	88	106	13.4	37	5.30	7.20	1.60
29	M	27	1	108	87	102.61	74	99	12.9	38	7.00	10.70	1.60
49	171	41	4	99	82	102.61	7 4 76	99 96	13.9	36 37	2.90	11.90	2.00
			5	106	80	102.61	70	84	13.9	39	2.30	14.10	2.20
			6	95	81	102.61	75	90	13.4	39	4.60	9.90	1.60
					01	102.01	, ,		13.1		1.00	7.70	1.00

Table 3: Individual patient data and clinical ratios for control subjects 14-29.

							Patie	nt Data			Clin	nical Rat	ios
Patient	Sex	Age	VM	\bar{P}	$ar{H}$	H_I	$H_{R,m}$	$H_{R,M}$	Length VM	Avg FE	α	β	γ
30	M	58	2	138	67	84.94	61	78	12.8	34	2.80	11.50	2.20
			4	141	65	84.94	51	79	12.9	35	2.60	14.80	2.20
			5	132	65	84.94	59	75	13.9	36	3.10	11.50	2.10
			6	144	63	84.94	58	71	12.8	36	3.20	11.40	2.50
31	M	28	3	159	109	108.74	92	115	14	38	22.20	4.50	1.20
			4	152	100	102.04	73	112	13.4	38	8.10	4.40	1.30
			6	167	101	102.04	86	114	13.4	37	10.30	8.50	1.50
32	F	27	3	129	91	102.61	82	101	14	35	6.70	16.00	1.40
			4	127	89	102.61	73	107	14	35	4.80	4.60	1.30
			5	136	88	102.61	76	109	12.8	33	5.40	5.00	1.20
			6	133	91	102.61	83	105	13.4	34	5.00	5.60	1.20
			7	133	92	102.61	76	103	13.5	38	6.10	10.10	1.50
33	M	63	6	71	92	91.82	85	100	14.5	33	1.80	23.90	2.00
			10	71	87	87.00	79	96	14.6	36	1.90	46.40	1.90
34	M	61	4	131	60	83.23	58	64	14.5	39	5.70	13.40	2.00
			6	123	61	83.23	58	65	14.6	40	0.00	17.00	1.90
			7	127	57	83.23	54	63	14	43	0.00	11.70	1.70
			8	123	56	83.23	47	65	13.9	42	0.00	19.10	2.00
35	M	39	3	132	55	95.77	47	64	14	37	3.60	15.30	1.60
			4	131	58	95.77	54	64	14.5	38	5.80	17.50	1.60
			7	120	57	95.77	50	65	14	38	2.50	15.40	1.60

Table 4: Individual patient data and clinical ratios for control subjects 30-35.

				Optimized Parameters							
Patient	Sex	Age	VM	В	$ au_{p,b}$	$ au_{p,r}$	$ au_{\scriptscriptstyle S}$	$H_{p,b}$	$H_{p,r}$	H_s	
1	F	41	2	0.43	0.39	4.05	6.12	0.20	0.07	0.07	
			3	0.70	2.95	25.56	4.21	0.20	0.11	0.06	
			4	1.00	1.11	4.89	10.91	0.29	0.13	0.25	
			6	0.53	1.95	1.51	10.65	0.25	0.12	0.52	
2	F	22	2	0.26	3.49	12.09	11.05	0.27	0.12	0.36	
			3	0.41	3.09	4.44	17.67	0.32	0.19	0.48	
			6	0.75	4.74	2.84	22.32	0.59	0.58	0.72	
			7	0.18	15.20	27.39	6.85	0.39	0.71	0.31	
			8	0.27	3.59	1.57	20.24	0.48	0.40	0.51	
3	F	21	4	0.22	1.25	1.93	12.30	0.45	0.34	0.16	
			8	1.00	0.95	0.85	19.03	0.24	0.05	0.15	
4	F	25	2	0.04	13.71	1.72	3.52	0.41	0.06	0.12	
			3	1.00	7.72	19.40	9.46	0.62	0.58	0.11	
			4	0.59	4.94	2.49	2.74	0.30	0.08	0.05	
			6	0.27	8.54	1.42	8.73	0.39	0.19	0.19	
			7	0.50	4.97	6.17	10.96	0.39	0.36	0.24	
			8	0.55	18.00*	5.19	7.99	0.66	0.34	0.30	
5	NA	N/A	1	0.23	0.68	1.65	12.40	0.27	0.09	0.84	
			3	0.01	0.18*	60.00*	4.11	0.10	0.03	0.36	
			4	0.01	0.18*	60.00*	6.34	0.14	0.04	0.25	
			7	0.07	6.38	35.50	15.79	0.22	0.17	0.57	
			8	0.32	17.80	53.80	9.72	0.26	0.09	0.43	
6	NA	N/A	2	0.04	17.97	6.92	6.98	0.45	0.27	0.76	
			5	0.03	17.30	2.98	12.27	0.61	0.07	1.69	
			7	0.01	18.00*	9.84	14.45	0.56	0.03	1.16	
7	F	29	3	1.00	4.43	1.91	29.21	0.41	0.40	0.02	
			4	0.14	17.98	2.12	5.67	0.32	0.17	0.27	
			7	0.08	18.00*	2.38	32.67	0.76	0.40	0.93	
8	F	30	3	0.77	17.82	4.01	15.88	0.50	0.12	1.20	
			4	0.74	3.40	1.25	7.46	0.32	0.11	0.20	
			5	0.65	10.10	1.11	8.52	0.44	0.11	0.50	
			8	0.35	14.27	11.20	14.24	0.79	0.60	0.59	
9	F	25	3	0.14	0.83	2.96	5.14	0.19	0.08	0.27	
			4	0.01	1.93	0.60*	38.52	0.45	0.27	0.74	
			5	0.69	0.18*	0.63	16.12	0.32	0.13	0.68	
			8	0.02	0.24	0.81	13.25	0.27	0.16	0.36	
			9	0.15	6.01	0.88	15.71	0.39	0.30	0.60	
			10	0.01	0.65	0.60	26.26	0.18	0.05	0.50	
10	M	30	4	0.74	2.06	4.57	21.94	0.61	0.36	0.06	
			5	0.15	2.50	1.70	25.96	0.46	0.04	0.12	
			7	0.46	1.77	1.30	11.03	0.41	0.04	0.06	
11	M	27	5	0.47	1.58	3.72	2.12	0.52	0.41	0.03	
			6	0.45	0.27	0.85	5.51	0.32	0.05	0.15	
			7	0.10	2.66	8.80	2.80	0.34	0.04	0.02	
			8	0.29	4.60	6.85	4.39	0.60	0.43	0.11	
			10	0.34	1.57	2.27	12.89	0.42	0.05	0.19	
12	F	27	7	0.08	18.00*	0.95	5.21	0.48	0.03	0.15	
			8	0.17	17.85	13.15	8.87	0.71	0.60	0.20	
			9	0.14	18.00*	0.68	3.88	0.44	0.13	0.17	
13	F	21	4	0.76	5.43	4.21	13.38	0.45	0.17	0.24	
			5	0.10	4.68	2.16	9.22	0.65	0.43	0.02	
			6	1.00	4.02	2.62	28.93	0.38	0.06	0.19	
			10	0.58	4.09	2.21	16.52	0.53	0.35	0.07	

Table 5: Optimized parameter values for control subjects 1-13.

						Optimize	d Param	eters		
Patient	Sex	Age	VM	В	$ au_{p,b}$	$ au_{p,r}$	$ au_{\scriptscriptstyle S}$	$H_{p,b}$	$H_{p,r}$	H_{s}
14	M	20	3	0.01	0.40	56.50	37.23	0.29	0.11	0.02
			5	0.03	2.16	7.09	14.68	0.35	0.03	0.37
			6	0.04	0.18*	60.00*	15.61	0.28	0.05	0.17
			7	0.07	0.18*	1.01	11.16	0.31	0.04	0.0°
15	F	27	6	0.75	6.36	0.60*	35.45	0.75	0.14	1.03
			7	0.85	3.70	1.78	23.67	0.70	0.12	0.90
			8	0.12	5.65	0.67	36.93	0.61	0.06	0.20
16	F	38	1	0.27	2.45	2.21	16.71	0.43	0.06	0.19
10	-	20	2	0.35	4.22	2.04	3.05	0.37	0.04	0.2
			3	0.29	7.62	7.75	4.10	0.42	0.04	0.2
			4	0.06	2.57	0.62	18.81	0.47	0.05	0.3
			6	0.10	18.00*	0.60*	3.72	0.54	0.06	0.3
17	F	52	3	0.10	4.20	1.14	7.44	0.34	0.19	0.3
17	Г	32		1						
			5	0.08	3.97	20.63	8.02	0.28	0.06	0.5
			6	0.04	6.89	1.97	40.08	0.64	0.15	1.8
- 10			7	0.02	2.73	1.11	6.45	0.20	0.04	0.4
18	F	51	2	0.06	16.63	2.64	13.61	0.74	0.08	0.6
			4	0.01	18.00*	0.79	6.17	0.62	0.14	0.2
			5	0.26	1.73	3.41	11.31	0.68	0.11	0.2
			6	0.22	10.63	8.93	5.65	0.69	0.21	0.3
			7	0.64	0.28	0.60*	3.12	0.39	0.02	0.0
20	F	43	5	0.37	16.44	0.70	13.37	0.54	0.29	0.2
21	M	45	4	1.00	2.55	0.91	12.22	0.38	0.06	0.0
			6	0.62	18.00*	3.98	26.88	0.57	0.04	0.0
			8	0.98	9.07	14.65	28.96	0.41	0.03	0.0
22	F	26	4	0.07	17.45	5.37	8.84	0.64	0.16	0.6
			5	0.02	18.00*	5.61	10.24	0.52	0.04	0.4
			6	0.06	1.18	3.72	12.85	0.30	0.04	0.3
23	M	28	1	0.75	1.79	26.44	11.86	0.40	0.35	0.1
			2	0.83	2.01	42.42	12.95	0.48	0.08	0.8
			3	0.35	5.91	24.37	14.61	0.86	0.62	0.0
			6	0.42	0.44	0.60*	5.91	0.47	0.09	0.1
24	F	21	2	0.11	18.00*	19.39	5.92	0.99	0.66	0.1
24	1	21	3	1.00	3.86	1.48	13.49	0.43	0.20	0.1
			4	0.06	5.15	3.76	7.58	0.43	0.20	0.2
			5	0.55		3.70 17.79		0.82		
					4.87		30.17		0.38	0.0
25	Г	22	7	0.37	5.48	8.69	5.94	0.84	0.57	0.1
25	F	22	2	0.94	4.91	22.76	7.94	0.40	0.12	0.1
			3	0.05	10.25	0.60*	10.91	0.51	0.09	0.1
			5	0.10	6.29	0.61	17.52	0.49	0.06	0.1
26	F	21	7	0.89	1.24	9.24	23.91	0.45	0.08	0.0
			8	0.86	1.31	5.56	34.23	0.41	0.06	0.0
27	M	20	2	0.28	18.00*	12.08	4.58	0.89	0.83	0.1
			3	0.63	5.72	3.10	16.56	0.85	0.97	0.1
			5	0.79	2.25	1.48	29.36	0.38	0.03	0.0
			6	0.14	18.00*	0.67	3.14	0.64	0.06	0.1
28	F	27	1	0.96	0.77	23.03	12.62	0.28	0.22	0.1
			3	0.12	1.88	2.14	11.23	0.52	0.62	0.2
			4	0.31	2.97	4.44	10.77	0.72	0.70	0.2
			5	0.04	12.26	1.08	7.46	0.35	0.23	0.5
29	M	27	1	0.36	2.48	5.09	7.44	0.50	0.25	0.2
23	171	41	4	1.00	0.27	1.62	4.80	0.30	0.33	0.2
			5	0.84	1.66			0.35	0.11	
						2.15	9.64			0.2
			6	0.34	1.93	2.87	4.34	0.32	0.11	0.2

Table 6: Optimized parameter values for control subjects 14-29.

				Optimized Parameters									
Patient	Sex	Age	VM	В	$ au_{p,b}$	$ au_{p,r}$	$ au_{\scriptscriptstyle S}$	$H_{p,b}$	$H_{p,r}$	$H_{\scriptscriptstyle S}$			
30	M	58	2	0.16	3.03	10.00	11.07	0.37	0.04	0.21			
			4	0.34	2.22	8.04	10.85	0.45	0.15	0.21			
			5	0.19	1.53	1.47	17.96	0.37	0.04	0.34			
			6	0.27	2.67	7.63	12.68	0.41	0.03	0.34			
31	M	28	3	0.92	0.19	3.74	100.00*	0.17	0.17	0.01*			
			4	0.14	0.75	0.79	13.74	0.25	0.25	0.14			
			6	0.16	1.69	0.75	34.13	0.14	0.15	0.04			
32	F	27	3	0.48	1.35	45.20	7.43	0.34	0.16	0.20			
			4	0.28	0.24	0.85	35.58	0.33	0.40	0.02			
				5	0.10	7.76	1.45	8.96	0.43	0.27	0.14		
			6	0.90	0.64	0.60*	9.62	0.28	0.04	0.48			
			7	0.87	0.54	2.30	14.33	0.37	0.11	0.55			
33	M	63	6	0.56	4.67	36.28	5.17	0.80	0.92	0.19			
			10	0.91	8.58	29.60	6.07	1.40	2.01	0.35			
34	M	61	4	1.00	1.45	3.56	12.64	0.33	0.07	0.12			
			6	0.78	2.66	6.75	8.79	0.35	0.02	0.02			
			7	1.00	3.30	3.25	17.13	0.34	0.02	0.04			
			8	1.00	2.74	5.13	12.76	0.38	0.04	0.03			
35	M	39	3	0.31	12.11	11.53	36.90	0.59	0.04	0.02			
			4	0.60	10.73	16.29	26.12	0.53	0.02	0.02			
			7	0.61	9.23	11.19	31.59	0.48	0.03	0.02			

Table 7: Optimized parameter values for control subjects 30-35.

							Clinical Ratios					
Patient	Sex	Age	VM	\bar{P}	\bar{H}	H_I	$H_{R,m}$	$H_{R,M}$	Length VM	α	β	γ
1	F	72	1	114	114	124.94	112	117	13.4	0.2	4.5	1
			2	114	116	127.64	116	119	14.9	0.1	2.6	1
2	M	79	1	159	73	72.97	68	76	10.9	0	3.3	1
3	M	71	1	130	83	90.87	80	86	13.9	0	13	1.1
			2	133	82	90.74	81	91	13.4	0	12.4	1.1
4	M	83	1	103	56	70.69	56	59	14.4	0	18.3	1
5	M	75	1	165	85	93.08	77	90	14.4	0.5	0.2	1
			2	175	88	96.26	77	94	14.6	0.8	0.1	1

Table 8: Individual patient data and clinical ratios for patients.

				Optimized Parameters									
Patient	Sex	Age	VM	В	$ au_{p,b}$	$ au_{p,r}$	$ au_{\scriptscriptstyle S}$	$H_{p,b}$	$H_{p,r}$	$H_{\mathcal{S}}$			
1	F	72	1	0.28	6.21	6.41	24.00	0.12	0.01*	0.03			
			2	0.62	7.82	21.62	10.36	0.14	0.05	0.03			
2	M	79	1	0.45	17.32	30.20	42.21	0.47	0.23	0.86			
3	M	71	1	0.99	18.00*	1.79	13.08	0.17	0.02	0.27			
			2	0.60	6.14	4.08	12.23	0.15	0.02	0.12			
4	M	83	1	1.00	1.76	7.20	11.68	0.33	0.09	0.14			
5	M	75	1	0.19	9.07	4.90	34.20	0.19	0.03	0.24			
			2	1.00	9.06	0.60*	52.70	0.19	0.04	0.33			

Table 9: Optimized parameter values for patients.

								Coefficient					
	1	2	3	4	5	6	7	8	9	10	Mean	SD	of Variation
\overline{B}	0.78	0.74	0.74	0.50	0.69	0.77	0.64	0.71	0.77	0.77	0.71	0.08	0.12
$ au_{p,b}$	4.75	4.78	4.58	4.31	4.62	4.88	4.52	4.75	4.69	4.85	4.67	0.17	0.04
$ au_{p,r}$	2.82	2.89	2.68	2.54	2.77	2.97	2.70	2.89	2.79	2.92	2.80	0.13	0.05
$ au_s$	22.99	23.44	21.26	18.30	20.91	24.24	19.43	23.22	21.56	24.00	21.93	1.99	0.09
$H_{p,b}$	0.59	0.60	0.57	0.55	0.57	0.61	0.56	0.60	0.58	0.60	0.58	0.02	0.03
$H_{p,r}$	0.58	0.59	0.57	0.57	0.58	0.60	0.57	0.59	0.57	0.59	0.58	0.01	0.02
H_s	0.75	0.74	0.68	0.48	0.64	0.78	0.57	0.71	0.71	0.78	0.68	0.10	0.14

Table 10: Test for identifiability of parameter subset performed on Control Subject 2 VM 6 by varying the initial parameter values by $\pm 20\%$

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