

## Supplemental Table 1

### Timing of Pubertal Onset in Black and Non-black Males and Females % (n)

<i>Onset</i>	<i>Males</i>			<i>Females</i>		
	<b>Black</b>	<b>Non-black</b>	<b>p</b>	<b>Black</b>	<b>Non-black</b>	<b>p</b>
<b>Earlier</b>	<b>27% (15)</b>	<b>28% (66)</b>		<b>46% (26)</b>	<b>20% (48)</b>	
<b>Average</b>	<b>45% (25)</b>	<b>49% (115)</b>	<b>0.61</b>	<b>41% (23)</b>	<b>45% (110)</b>	<b>&lt;0.001</b>
<b>Later</b>	<b>28% (16)</b>	<b>22% (52)</b>		<b>13% (7)</b>	<b>35% (85)</b>	

For males, earlier puberty was defined as age of onset <10.2 y; average onset as occurring between 10.2 and 11.8 y, and later puberty as onset at age >11.8 y. For females, earlier puberty was defined as age of onset <9.6 y; average onset as occurring between 9.6 and 11.1 y, and later puberty as onset at age >11.1 y.

Supplemental Table 2a. Reference Ranges and L, M, S values for Height Velocity for Males and Females without Reference to Timing of Pubertal Onset

All Males								All Females						
Midpoint of Age Range														
			<u>3rd</u>	<u>10th</u>	<u>50th</u>	<u>90th</u>	<u>97th</u>			<u>3rd</u>	<u>10th</u>	<u>50th</u>	<u>90th</u>	<u>97th</u>
	L	S			M			L	S			M		
5.50	0.85	0.13	5.2	5.7	6.8	7.9	8.4	1.24	0.14	4.8	5.4	6.7	7.9	8.4
5.75	0.84	0.13	5.1	5.6	6.7	7.9	8.4	1.21	0.14	4.8	5.3	6.6	7.8	8.3
6.00	0.83	0.13	5.0	5.5	6.6	7.8	8.3	1.19	0.14	4.7	5.3	6.5	7.7	8.2
6.25	0.82	0.13	5.0	5.4	6.5	7.6	8.1	1.16	0.14	4.7	5.2	6.4	7.6	8.1
6.50	0.81	0.12	4.9	5.3	6.4	7.4	7.9	1.14	0.14	4.6	5.1	6.4	7.6	8.1
6.75	0.80	0.12	4.8	5.2	6.2	7.3	7.7	1.12	0.15	4.5	5.1	6.3	7.5	8.0
7.00	0.79	0.13	4.7	5.1	6.1	7.2	7.7	1.09	0.15	4.5	5.0	6.2	7.5	8.0
7.25	0.77	0.14	4.5	5.0	6.1	7.2	7.7	1.07	0.16	4.3	4.9	6.2	7.4	8.0
7.50	0.76	0.15	4.3	4.8	6.0	7.3	7.8	1.05	0.16	4.2	4.8	6.1	7.4	7.9
7.75	0.75	0.16	4.2	4.7	5.9	7.3	7.8	1.02	0.17	4.1	4.7	6.0	7.4	7.9
8.00	0.74	0.16	4.2	4.6	5.9	7.2	7.7	1.00	0.17	4.0	4.6	6.0	7.4	7.9
8.25	0.73	0.16	4.1	4.6	5.8	7.1	7.6	0.97	0.18	3.9	4.5	6.0	7.4	8.0
8.50	0.72	0.16	4.1	4.5	5.7	7.0	7.5	0.95	0.19	3.9	4.5	5.9	7.4	8.0
8.75	0.70	0.17	3.9	4.4	5.6	6.9	7.5	0.93	0.19	3.8	4.4	6.0	7.5	8.2
9.00	0.69	0.17	3.8	4.3	5.5	6.9	7.4	0.90	0.20	3.8	4.4	6.0	7.7	8.3
9.25	0.68	0.18	3.7	4.2	5.5	6.9	7.5	0.88	0.21	3.8	4.5	6.1	7.8	8.5
9.50	0.67	0.19	3.6	4.1	5.5	6.9	7.6	0.86	0.21	3.8	4.5	6.2	8.0	8.8
9.75	0.66	0.21	3.5	4.0	5.4	7.0	7.7	0.83	0.22	3.8	4.5	6.3	8.2	9.0
10.00	0.65	0.22	3.4	3.9	5.4	7.1	7.8	0.81	0.22	3.9	4.6	6.4	8.4	9.3
10.25	0.64	0.23	3.3	3.9	5.4	7.2	8.0	0.79	0.23	3.9	4.6	6.6	8.6	9.5
10.50	0.62	0.25	3.2	3.8	5.5	7.4	8.3	0.76	0.24	3.9	4.6	6.6	8.8	9.7
10.75	0.61	0.27	3.1	3.7	5.6	7.7	8.6	0.74	0.24	3.8	4.6	6.6	8.9	9.9
11.00	0.60	0.28	3.0	3.7	5.7	8.0	9.0	0.71	0.26	3.6	4.4	6.6	9.0	10.0
11.25	0.59	0.30	3.0	3.7	5.9	8.4	9.6	0.69	0.28	3.4	4.2	6.5	9.0	10.1
11.50	0.58	0.31	3.0	3.8	6.1	8.9	10.1	0.67	0.30	3.1	3.9	6.3	9.0	10.2

11.75	0.57	0.32	3.1	3.9	6.4	9.3	10.7	0.64	0.34	2.7	3.5	6.0	8.9	10.3
12.00	0.55	0.32	3.1	4.0	6.6	9.8	11.2	0.62	0.38	2.2	3.1	5.7	8.8	10.2
12.25	0.54	0.33	3.3	4.2	6.9	10.2	11.7	0.60	0.42	1.8	2.6	5.3	8.6	10.1
12.50	0.53	0.33	3.4	4.3	7.1	10.5	12.1	0.57	0.47	1.4	2.2	4.8	8.2	9.9
12.75	0.52	0.33	3.5	4.4	7.2	10.7	12.3	0.55	0.52	1.0	1.8	4.3	7.8	9.5
13.00	0.51	0.33	3.5	4.4	7.2	10.8	12.4	0.53	0.57	0.8	1.4	3.8	7.3	9.0
13.25	0.50	0.34	3.3	4.3	7.2	10.7	12.4	0.50	0.62	0.6	1.1	3.3	6.6	8.3
13.50	0.49	0.36	3.1	4.1	7.0	10.6	12.4	0.48	0.67	0.4	0.9	2.8	6.0	7.6
13.75	0.47	0.38	2.8	3.7	6.6	10.5	12.3	0.45	0.71	0.3	0.7	2.4	5.3	6.9
14.00	0.46	0.42	2.3	3.3	6.2	10.2	12.2	0.43	0.75	0.2	0.5	2.0	4.7	6.1
14.25	0.45	0.47	1.9	2.8	5.7	9.9	12.0	0.41	0.79	0.2	0.4	1.7	4.0	5.3
14.50	0.44	0.52	1.4	2.3	5.2	9.5	11.6	0.38	0.82	0.1	0.3	1.4	3.5	4.7
14.75	0.43	0.58	1.1	1.8	4.6	8.9	11.2	0.36	0.84	0.1	0.3	1.2	3.0	4.1
15.00	0.42	0.63	0.8	1.4	4.0	8.3	10.6	0.34	0.87	0.1	0.2	1.0	2.6	3.6
15.25	0.40	0.69	0.6	1.1	3.5	7.6	9.8	0.31	0.89	0.1	0.2	0.9	2.4	3.3
15.50	0.39	0.74	0.4	0.8	2.9	6.8	8.9	0.29	0.91	0.1	0.2	0.8	2.1	3.0
15.75	0.38	0.78	0.3	0.6	2.5	6.0	8.0	0.27	0.92	0.1	0.2	0.7	2.0	2.8
16.00	0.37	0.82	0.2	0.5	2.0	5.1	7.0	0.24	0.94	0.1	0.1	0.6	1.8	2.6
16.25	0.36	0.86	0.2	0.4	1.7	4.4	6.0	0.22	0.95	0.1	0.1	0.5	1.6	2.4
16.50	0.35	0.88	0.1	0.3	1.4	3.7	5.1	0.19	0.96	0.1	0.1	0.5	1.5	2.3
16.75	0.34	0.91	0.1	0.2	1.1	3.1	4.3	0.17	0.97	0.1	0.1	0.5	1.5	2.3
17.00	0.32	0.92	0.1	0.2	0.9	2.6	3.7	0.15	0.98	0.1	0.1	0.4	1.5	2.3
17.25	0.31	0.94	0.1	0.2	0.8	2.2	3.1	0.12	0.99	0.1	0.1	0.4	1.5	2.3
17.50	0.30	0.94	0.1	0.1	0.6	1.9	2.7	0.10	1.00	0.0	0.1	0.4	1.4	2.3
17.75	0.29	0.95	0.0	0.1	0.5	1.6	2.3							
18.00	0.28	0.95	0.0	0.1	0.5	1.5	2.1							
18.25	0.27	0.96	0.0	0.1	0.4	1.3	1.9							
18.50	0.25	0.96	0.0	0.1	0.4	1.2	1.7							

***The LMS method uses a Box-Cox transformation to obtain normality. The LMS parameters are the power in the Box-Cox transformation (L), the median (M), and the generalized coefficient of variation (S). For an individual height velocity measurement (HV), the HV-centile and HV-Z can be calculated using either equation 1 or 2 in the Methods section and the age- and sex-specific L, M, and S parameters above.***

Supplemental Table 2b. Reference Ranges and L, M, S values for Height Velocity for Earlier, Average, and Later Maturing Males and Females.

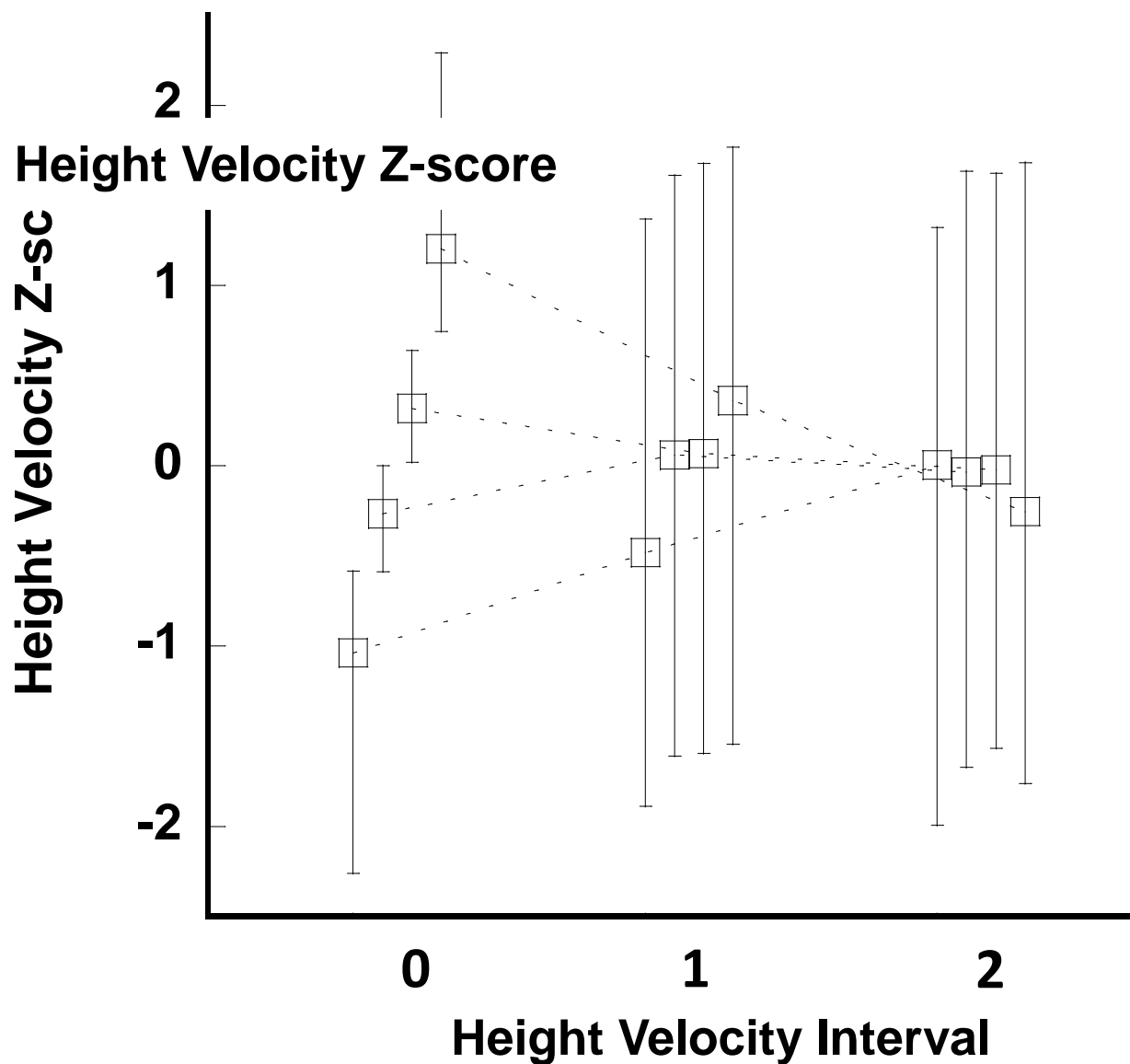
Males																					
	Earlier maturing							Average maturing							Later maturing						
Mid-point of age interval	Percentile							Percentile							Percentile						
	L	S	3	10	50 M	90	97	L	S	3	10	50 M	90	97	L	S	3	10	50 M	90	97
6.50	0.25	0.09	5.3	5.5	6.3	7.0	7.4	0.59	0.10	5.2	5.5	6.3	7.1	7.4	0.40	0.15	4.6	5.0	6.2	7.5	8.1
6.75	0.25	0.10	5.3	5.6	6.4	7.3	7.7	0.59	0.11	5.0	5.3	6.2	7.1	7.5	0.40	0.15	4.5	4.9	6.1	7.4	8.0
7.00	0.25	0.11	5.2	5.6	6.5	7.5	7.9	0.59	0.12	4.9	5.2	6.2	7.1	7.6	0.40	0.15	4.4	4.8	6.0	7.3	7.9
7.25	0.25	0.12	5.1	5.5	6.5	7.6	8.1	0.59	0.13	4.7	5.1	6.1	7.2	7.6	0.40	0.16	4.3	4.8	5.9	7.2	7.8
7.50	0.25	0.13	5.0	5.4	6.4	7.7	8.2	0.59	0.14	4.6	5.0	6.0	7.2	7.7	0.40	0.16	4.2	4.7	5.8	7.1	7.7
7.75	0.25	0.14	4.8	5.2	6.3	7.6	8.2	0.59	0.14	4.4	4.9	6.0	7.2	7.7	0.40	0.16	4.2	4.6	5.7	7.0	7.6
8.00	0.25	0.16	4.5	5.0	6.1	7.5	8.1	0.59	0.15	4.3	4.7	5.9	7.2	7.7	0.40	0.16	4.1	4.5	5.7	7.0	7.5
8.25	0.25	0.17	4.3	4.7	6.0	7.4	8.1	0.59	0.16	4.2	4.6	5.8	7.1	7.7	0.40	0.16	4.0	4.4	5.6	6.8	7.4
8.50	0.25	0.18	4.1	4.6	5.9	7.4	8.1	0.59	0.17	4.0	4.5	5.7	7.1	7.7	0.40	0.16	3.9	4.3	5.5	6.7	7.3
8.75	0.25	0.19	4.0	4.5	5.8	7.5	8.2	0.59	0.18	3.9	4.4	5.7	7.1	7.7	0.40	0.17	3.8	4.2	5.3	6.6	7.2
9.00	0.25	0.20	3.9	4.4	5.8	7.5	8.3	0.59	0.19	3.8	4.3	5.6	7.1	7.7	0.40	0.17	3.7	4.1	5.2	6.5	7.0
9.25	0.25	0.21	3.8	4.4	5.8	7.6	8.5	0.59	0.20	3.6	4.2	5.5	7.0	7.7	0.40	0.17	3.6	4.0	5.1	6.3	6.9
9.50	0.25	0.22	3.7	4.3	5.8	7.7	8.7	0.59	0.20	3.5	4.1	5.5	7.0	7.7	0.40	0.17	3.5	3.9	5.0	6.2	6.8
9.75	0.25	0.23	3.6	4.2	5.8	7.8	8.8	0.59	0.21	3.5	4.0	5.4	7.1	7.8	0.40	0.18	3.4	3.8	4.9	6.1	6.7
10.00	0.25	0.24	3.6	4.1	5.8	7.9	9.0	0.59	0.22	3.4	3.9	5.4	7.1	7.8	0.40	0.18	3.3	3.7	4.8	6.0	6.6
10.25	0.25	0.26	3.5	4.1	5.9	8.1	9.2	0.59	0.23	3.3	3.9	5.4	7.1	7.9	0.40	0.18	3.2	3.6	4.7	6.0	6.5
10.50	0.25	0.27	3.5	4.1	5.9	8.3	9.5	0.59	0.24	3.3	3.8	5.4	7.2	8.0	0.40	0.19	3.2	3.6	4.6	5.9	6.5
10.75	0.25	0.28	3.4	4.1	6.0	8.6	9.8	0.59	0.24	3.2	3.8	5.5	7.4	8.2	0.40	0.19	3.1	3.5	4.6	5.9	6.5

11.00	0.25	0.29	3.5	4.1	6.2	9.0	10.3	0.59	0.25	3.2	3.9	5.6	7.6	8.5	0.40	0.20	3.1	3.5	4.6	5.9	6.5
11.25	0.25	0.30	3.5	4.3	6.5	9.5	11.0	0.59	0.26	3.2	3.9	5.8	7.9	8.9	0.40	0.21	3.0	3.5	4.6	6.0	6.6
11.50	0.25	0.31	3.6	4.4	6.8	10.1	11.7	0.59	0.27	3.2	4.0	6.0	8.3	9.4	0.40	0.21	3.0	3.5	4.7	6.2	6.8
11.75	0.25	0.32	3.7	4.5	7.1	10.6	12.4	0.59	0.28	3.3	4.1	6.2	8.8	10.0	0.40	0.22	3.0	3.5	4.8	6.3	7.1
12.00	0.25	0.33	3.7	4.5	7.2	11.0	12.9	0.59	0.30	3.3	4.2	6.5	9.3	10.5	0.40	0.23	3.1	3.6	5.0	6.6	7.4
12.25	0.25	0.34	3.6	4.5	7.3	11.3	13.3	0.59	0.31	3.3	4.2	6.8	9.8	11.1	0.40	0.24	3.1	3.7	5.2	7.0	7.8
12.50	0.25	0.35	3.5	4.4	7.3	11.4	13.5	0.59	0.32	3.3	4.3	7.0	10.2	11.7	0.40	0.25	3.2	3.8	5.4	7.4	8.4
12.75	0.25	0.37	3.4	4.3	7.2	11.3	13.5	0.59	0.33	3.3	4.3	7.2	10.6	12.2	0.40	0.26	3.3	3.9	5.7	7.9	8.9
13.00	0.25	0.38	3.2	4.1	7.0	11.2	13.3	0.59	0.35	3.2	4.2	7.2	10.9	12.5	0.40	0.27	3.4	4.0	6.0	8.4	9.5
13.25	0.25	0.39	3.0	3.8	6.7	10.9	13.1	0.59	0.36	3.0	4.1	7.2	11.0	12.8	0.40	0.28	3.4	4.1	6.2	8.9	10.1
13.50	0.25	0.40	2.8	3.6	6.4	10.5	12.6	0.59	0.38	2.8	3.9	7.1	11.0	12.8	0.40	0.30	3.4	4.2	6.4	9.3	10.6
13.75	0.25	0.41	2.5	3.3	6.0	9.9	12.0	0.59	0.39	2.6	3.7	6.9	10.9	12.7	0.40	0.31	3.4	4.2	6.6	9.6	11.1
14.00	0.25	0.42	2.3	3.0	5.5	9.2	11.2	0.59	0.41	2.4	3.4	6.6	10.6	12.5	0.40	0.32	3.3	4.1	6.6	9.8	11.4
14.25	0.25	0.43	2.0	2.6	4.9	8.3	10.2	0.59	0.43	2.1	3.1	6.2	10.2	12.1	0.40	0.34	3.2	4.0	6.6	10.0	11.6
14.50	0.25	0.44	1.6	2.2	4.2	7.2	8.8	0.59	0.45	1.8	2.8	5.8	9.8	11.6	0.40	0.35	3.0	3.9	6.5	10.0	11.6
14.75	0.25	0.45	1.3	1.7	3.4	5.9	7.3	0.59	0.47	1.5	2.5	5.4	9.2	11.0	0.40	0.36	2.8	3.7	6.3	9.8	11.5
15.00	0.25	0.46	0.9	1.3	2.5	4.5	5.6	0.59	0.49	1.3	2.1	4.9	8.6	10.4	0.40	0.38	2.6	3.4	6.0	9.5	11.3
15.25	0.25	0.48	0.6	0.9	1.8	3.2	4.0	0.59	0.52	1.1	1.8	4.5	8.0	9.7	0.40	0.40	2.3	3.1	5.6	9.1	10.8
15.50	0.25	0.49	0.4	0.6	1.2	2.2	2.7	0.59	0.54	0.8	1.6	4.0	7.3	8.9	0.40	0.41	2.1	2.8	5.2	8.6	10.2
15.75	0.25	0.50	0.3	0.4	0.8	1.5	1.9	0.59	0.57	0.7	1.3	3.6	6.6	8.1	0.40	0.43	1.8	2.5	4.7	7.9	9.5
16.00	0.25	0.51	0.2	0.3	0.7	1.3	1.6	0.59	0.59	0.5	1.1	3.1	5.9	7.3	0.40	0.45	1.5	2.1	4.2	7.2	8.7
16.25	0.25	0.52	0.2	0.3	0.7	1.2	1.6	0.59	0.61	0.4	0.9	2.7	5.2	6.4	0.40	0.46	1.3	1.8	3.7	6.4	7.8
16.50								0.59	0.64	0.3	0.7	2.2	4.4	5.5	0.40	0.48	1.0	1.5	3.2	5.6	6.9
16.75								0.59	0.66	0.2	0.5	1.8	3.6	4.5	0.40	0.50	0.8	1.2	2.7	4.8	5.9
17.00								0.59	0.69	0.1	0.4	1.3	2.7	3.4	0.40	0.51	0.6	1.0	2.2	4.0	5.0
17.25								0.59	0.71	0.1	0.2	0.9	1.8	2.3	0.40	0.53	0.5	0.8	1.8	3.3	4.1
17.50								0.59	0.74	0.0	0.1	0.4	0.9	1.1	0.40	0.55	0.4	0.6	1.4	2.6	3.3
17.75								0.59	0.76	0.0	0.0	0.0	0.1	0.1	0.40	0.57	0.3	0.4	1.0	2.0	2.5
18.00															0.40	0.58	0.2	0.3	0.7	1.4	1.8
18.25															0.40	0.60	0.1	0.2	0.4	0.8	1.0
18.50															0.40	0.61	0.1	0.1	0.3	0.7	0.9

Females																					
	Earlier maturing							Average maturing							Later maturing						
Mid-point of age interval	Percentile							Percentile							Percentile						
	L	S	3	10	50 M	90	97	L	S	3	10	50 M	90	97	L	S	3	10	50 M	90	97
6.25	0.64	0.10	5.0	5.3	6.1	6.9	7.3														
6.50	0.64	0.11	4.9	5.2	6.1	7.1	7.5	0.67	0.17	4.4	4.9	6.2	7.7	8.3	-0.57	0.10	5.2	5.5	6.2	7.1	7.6
6.75	0.64	0.12	4.8	5.2	6.2	7.2	7.6	0.67	0.17	4.3	4.8	6.2	7.6	8.2	-0.52	0.10	5.1	5.4	6.1	7.0	7.5
7.00	0.64	0.13	4.7	5.1	6.2	7.3	7.8	0.67	0.17	4.3	4.8	6.1	7.5	8.1	-0.46	0.10	5.0	5.3	6.0	6.9	7.4
7.25	0.64	0.15	4.6	5.0	6.2	7.5	8.0	0.67	0.17	4.2	4.7	6.0	7.4	8.0	-0.41	0.11	4.9	5.2	5.9	6.8	7.3
7.50	0.64	0.16	4.5	5.0	6.2	7.6	8.2	0.67	0.17	4.1	4.6	5.9	7.3	7.9	-0.35	0.11	4.8	5.1	5.8	6.7	7.2
7.75	0.64	0.17	4.4	4.9	6.3	7.8	8.4	0.67	0.17	4.1	4.6	5.8	7.2	7.8	-0.30	0.11	4.7	5.0	5.7	6.7	7.1
8.00	0.64	0.18	4.3	4.9	6.4	8.0	8.7	0.67	0.17	4.0	4.5	5.8	7.1	7.7	-0.25	0.11	4.6	4.9	5.7	6.6	7.1
8.25	0.64	0.19	4.3	4.9	6.4	8.2	8.9	0.67	0.17	4.0	4.5	5.7	7.1	7.7	-0.19	0.12	4.5	4.8	5.6	6.6	7.1
8.50	0.64	0.20	4.2	4.8	6.5	8.4	9.2	0.67	0.18	3.9	4.4	5.7	7.1	7.7	-0.14	0.12	4.5	4.8	5.6	6.6	7.1
8.75	0.64	0.22	4.1	4.8	6.6	8.6	9.5	0.67	0.18	3.9	4.4	5.7	7.1	7.7	-0.08	0.13	4.4	4.7	5.6	6.6	7.1
9.00	0.64	0.23	4.1	4.8	6.7	8.9	9.8	0.67	0.19	3.9	4.4	5.8	7.2	7.9	-0.03	0.14	4.3	4.6	5.5	6.7	7.2
9.25	0.64	0.24	4.0	4.8	6.9	9.2	10.2	0.67	0.19	3.9	4.4	5.9	7.4	8.1	0.02	0.15	4.2	4.5	5.5	6.7	7.3
9.50	0.64	0.25	4.0	4.8	7.0	9.4	10.5	0.67	0.20	3.9	4.5	6.0	7.7	8.4	0.07	0.16	4.1	4.5	5.5	6.8	7.3
9.75	0.64	0.26	3.9	4.7	7.0	9.7	10.8	0.67	0.21	3.9	4.5	6.2	8.0	8.7	0.13	0.17	4.0	4.4	5.5	6.8	7.5
10.00	0.64	0.27	3.8	4.7	7.1	9.8	11.0	0.67	0.22	3.9	4.6	6.3	8.3	9.1	0.18	0.18	3.9	4.3	5.5	6.9	7.6
10.25	0.64	0.29	3.6	4.5	7.0	9.9	11.2	0.67	0.23	3.9	4.6	6.5	8.6	9.5	0.23	0.19	3.8	4.3	5.5	7.0	7.7
10.50	0.64	0.30	3.4	4.4	6.9	9.8	11.2	0.67	0.24	3.9	4.7	6.6	8.8	9.8	0.28	0.20	3.7	4.2	5.5	7.1	7.9
10.75	0.64	0.31	3.2	4.1	6.7	9.7	11.0	0.67	0.25	3.8	4.6	6.7	9.0	10.1	0.33	0.21	3.7	4.2	5.6	7.3	8.1
11.00	0.64	0.32	3.0	3.9	6.4	9.4	10.7	0.67	0.26	3.7	4.5	6.7	9.2	10.3	0.38	0.22	3.6	4.2	5.7	7.5	8.3
11.25	0.64	0.33	2.7	3.6	6.0	8.9	10.2	0.67	0.28	3.5	4.4	6.7	9.3	10.4	0.43	0.23	3.6	4.2	5.8	7.7	8.6
11.50	0.64	0.34	2.4	3.2	5.6	8.4	9.6	0.67	0.29	3.3	4.1	6.5	9.2	10.4	0.48	0.24	3.6	4.2	5.9	8.0	8.9

11.75	0.64	0.36	2.1	2.9	5.1	7.7	8.9	0.67	0.32	2.9	3.8	6.3	9.1	10.3	0.52	0.25	3.5	4.2	6.0	8.2	9.2
12.00	0.64	0.37	1.8	2.6	4.6	7.1	8.2	0.67	0.34	2.6	3.5	5.9	8.8	10.1	0.56	0.27	3.4	4.1	6.1	8.4	9.5
12.25	0.64	0.38	1.6	2.2	4.1	6.4	7.4	0.67	0.37	2.2	3.1	5.5	8.4	9.7	0.60	0.28	3.2	4.0	6.1	8.5	9.6
12.50	0.64	0.39	1.3	1.9	3.6	5.7	6.6	0.67	0.39	1.8	2.6	5.1	7.9	9.2	0.63	0.29	3.1	3.8	6.0	8.6	9.7
12.75	0.64	0.40	1.1	1.6	3.2	5.0	5.8	0.67	0.42	1.4	2.2	4.5	7.3	8.6	0.66	0.31	2.8	3.6	5.9	8.5	9.7
13.00	0.64	0.42	0.9	1.4	2.7	4.4	5.1	0.67	0.46	1.1	1.8	4.0	6.7	7.9	0.68	0.33	2.5	3.4	5.7	8.3	9.5
13.25	0.64	0.43	0.8	1.1	2.3	3.8	4.4	0.67	0.49	0.8	1.5	3.5	6.0	7.1	0.69	0.35	2.2	3.1	5.4	8.0	9.2
13.50	0.64	0.44	0.6	1.0	2.0	3.3	3.9	0.67	0.52	0.6	1.2	2.9	5.2	6.2	0.70	0.37	1.9	2.7	5.0	7.6	8.8
13.75	0.64	0.45	0.5	0.8	1.7	2.9	3.4	0.67	0.55	0.4	0.9	2.4	4.4	5.3	0.69	0.39	1.7	2.4	4.6	7.2	8.3
14.00	0.64	0.46	0.4	0.7	1.5	2.5	3.0	0.67	0.58	0.3	0.7	1.9	3.6	4.4	0.68	0.41	1.4	2.1	4.2	6.7	7.8
14.25	0.64	0.47	0.4	0.6	1.4	2.3	2.7	0.67	0.61	0.2	0.5	1.6	3.0	3.6	0.66	0.44	1.1	1.8	3.7	6.1	7.2
14.50	0.64	0.49	0.3	0.5	1.2	2.1	2.6	0.67	0.64	0.1	0.3	1.2	2.4	3.0	0.62	0.46	0.9	1.5	3.3	5.6	6.6
14.75	0.64	0.50	0.3	0.5	1.2	2.0	2.4	0.67	0.67	0.1	0.2	1.0	2.0	2.5	0.58	0.49	0.8	1.3	2.9	5.0	6.0
15.00	0.64	0.51	0.3	0.5	1.1	2.0	2.4	0.67	0.70	0.0	0.2	0.8	1.7	2.1	0.53	0.52	0.6	1.1	2.5	4.5	5.4
15.25								0.67	0.73	0.0	0.1	0.7	1.4	1.8	0.48	0.54	0.5	0.9	2.1	3.9	4.8
15.50								0.67	0.76	0.0	0.1	0.6	1.3	1.6	0.42	0.57	0.4	0.7	1.8	3.4	4.3
15.75								0.67	0.80		0.1	0.6	1.2	1.6	0.35	0.60	0.4	0.6	1.5	3.0	3.8
16.00								0.67	0.83		0.1	0.6	1.3	1.6	0.29	0.62	0.3	0.5	1.2	2.6	3.4
16.25								0.67	0.86		0.1	0.6	1.3	1.6	0.22	0.65	0.2	0.4	1.0	2.2	3.0
16.50															0.15	0.68	0.2	0.3	0.8	1.9	2.6
16.75															0.08	0.70	0.2	0.2	0.6	1.6	2.2
17.00															0.00	0.73	0.1	0.2	0.5	1.2	1.9
17.25															-0.07	0.75	0.1	0.1	0.3	0.9	1.3

***The LMS method uses a Box-Cox transformation to obtain normality. The LMS parameters are the power in the Box-Cox transformation (L), the median (M), and the generalized coefficient of variation (S). For an individual height velocity measurement (HV), the HV-centile and HV-Z can be calculated using either equation 1 or 2 in the Methods section and the age-, sex-, and pubertal onset-specific L, M, and S parameters above.***



### Supplementary File Figure Legends

**Figure S1 Tracking of Height Velocity Z-score.** Shown are the median, 5<sup>th</sup> and 95<sup>th</sup> percentile values for HV-Z for groups divided by baseline height velocity quartile at baseline HV (0) and at the subsequent two years (1 and 2) post-baseline HV. Data are restricted to individuals with height velocity values at each time point and mid-age<16y.