





**Hankinson Predicted Spirometric Reference Values –FEMALE**

Age	Parameters	42" 107cm		46" 117 cm		50" 127 cm		54" 137 cm		58" 147 cm		62" 157 cm		66" 168 cm		68" 173 cm		70" 178 cm		72" 183 cm		74" 188 cm		76" 193 cm		
		Pred	80%	Pred	80%	Pred	80%	Pred	80%	Pred	80%	Pred	80%	Pred	80%	Pred	80%	Pred	80%	Pred	80%	Pred	80%	Pred	80%	
8	FEV1	C	0.96	0.77	1.22	0.98	1.51	1.21	1.81	1.45	2.15	1.72	2.5	2.00												
	A	0.84	0.68	1.07	0.86	1.33	1.06	1.59	1.27	1.89	1.51	2.2	1.76													
	H	0.86	0.69	1.10	0.88	1.36	1.09	1.63	1.30	1.94	1.55	2.25	1.80													
10	PEF	C	136	109	162	130	190	152	220	176	252	202	286	229												
	A	120	96	143	114	167	134	194	155	222	177	252	201													
	H	122	98	146	117	171	137	198	158	227	181	257	206													
12	FEV1	C	1.09	0.87	1.35	1.08	1.64	1.31	1.95	1.56	2.28	1.82	2.63	2.10	3.01	2.41										
	A	0.96	0.77	1.19	0.95	1.44	1.15	1.72	1.37	2.01	1.61	2.31	1.85	2.65	2.12											
	H	0.98	0.78	1.22	0.97	1.48	1.18	1.76	1.40	2.05	1.64	2.37	1.89	2.71	2.17											
14	PEF	C	173	138	198	158	226	181	256	205	288	230	323	258	360	288										
	A	152	122	174	139	199	159	225	180	253	203	284	227	317	253											
	H	156	125	178	143	203	163	230	184	259	207	291	233	324	259											
16	FEV1	C			1.48	1.18	1.77	1.42	2.08	1.66	2.41	1.93	2.76	2.21	3.14	2.51	3.34	2.67								
	A			1.30	1.04	1.56	1.25	1.83	1.46	2.12	1.70	2.43	1.94	2.76	2.21	3.05	2.35									
	H			1.33	1.07	1.59	1.27	1.87	1.50	2.17	1.74	2.48	1.99	2.83	2.26	3.01	2.40									
18	PEF	C			227	182	254	203	284	227	317	254	351	281	388	310	407	326								
	A			200	160	224	179	250	200	279	223	309	247	341	273	358	287									
	H			204	163	229	183	256	204	285	228	316	253	349	279	366	293									
14	FEV1	C					1.9	1.52	2.21	1.77	2.54	2.03	2.9	2.32	3.27	2.62	3.47	2.78	3.68	2.94	3.98	3.18				
	A					1.67	1.34	1.94	1.56	2.24	1.79	2.55	2.04	2.88	2.30	3.05	2.44	3.24	2.59	3.50	2.80					
	H					1.71	1.37	1.99	1.59	2.29	1.83	2.61	2.09	2.94	2.35	3.12	2.50	3.31	2.65	3.58	2.87					
16	PEF	C					274	219	304	243	337	270	371	297	408	326	428	342	448	358	468	374				
	A					241	193	268	214	297	237	326	261	359	287	377	301	394	315	412	329					
	H					247	222	274	246	303	273	334	301	367	330	385	347	403	363	421	379					
18	FEV1	C					2.03	1.62	2.34	1.87	2.67	2.14	3.03	2.42	3.41	2.73	3.6	2.88	3.81	3.05	4.02	3.22	4.24	3.39		
	A					1.79	1.43	2.06	1.65	2.35	1.88	2.67	2.13	3.00	2.40	3.17	2.53	3.35	2.68	3.54	2.83	3.73	2.98			
	H					1.83	1.46	2.11	1.68	2.40	1.92	2.73	2.18	3.07	2.46	3.24	2.59	3.43	2.74	3.62	2.89	3.82	3.05			
18	PEF	C					286	229	317	254	349	279	383	306	421	337	440	352	460	368	480	384	501	401		
	A					252	201	279	223	307	246	337	270	370	296	387	310	405	324	422	338	441	353			
	H					257	206	285	228	314	251	345	276	379	303	396	317	414	331	432	346	451	361			
18	FEV1	C									2.8	2.24	3.16	2.53	3.54	2.83	3.73	2.98	3.95	3.16	4.16	3.33	4.37	3.50	4.59	3.67
	A										2.46	1.97	2.78	2.22	3.12	2.49	3.28	2.63	3.48	2.78	3.66	2.93	3.85	3.08	4.04	3.23
	H										2.52	2.02	2.84	2.28	3.19	2.55	3.36	2.69	3.56	2.84	3.74	3.00	3.93	3.15	4.13	3.30
18	PEF	C									353	282	388	310	424	339	444	355	464	371	485	388	505	404	527	422
	A										311	249	341	273	373	298	391	313	408	327	427	341	444	356	464	371
	H										318	286	349	314	382	343	400	360	418	376	437	393	455	409	474	427

Table adapted from Hankinson, J.L., Odencrantz, J.R. & Fedan, K.B. (1999). Spirometric reference values from a sample of the general U.S. population. *American Journal of Respiratory and Critical Care Medicine*, 159, p. 179-187.

\* PEF (peak expiratory flow) is expressed in LPM (Liters per Minute) \* C = Caucasian; A = African-American; and H = Hispanic American  
 \* All values based on equations for Caucasian subjects. Ethnic reduction for FEV1 was calculated using a 12% reduction for African-American and a 10% reduction for Hispanic American. For Asian American, an 8% reduction should be used.

\* Classification of Asthma Severity: An FEV1 > 80% predicted is consistent with intermittent OR mild persistent; if FEV1 is 60-80% predicted = moderate persistent; and FEV1 < 60% predicted = severe persistent.

\* To calculate % predicted: Take actual value/predicted value X 100.

Hankinson Predicted Spirometric Reference Values –MALE

Age	Parameters	42" 107cm		46" 117 cm		50" 127 cm		54" 137 cm		58" 147 cm		62" 157 cm		66" 168 cm		68" 173 cm		70" 178 cm		72" 183 cm		74" 188 cm		76" 193 cm		
		Pred	80%	Pred	80%	Pred	80%	Pred	80%	Pred	80%	Pred	80%	Pred	80%	Pred	80%	Pred	80%	Pred	80%	Pred	80%	Pred	80%	
8	FEV1	C	0.82	0.66	1.14	0.91	1.49	1.19	1.86	1.49	2.27	1.82	2.71	2.17												
	A	0.72	0.58	1.00	0.80	1.31	1.05	1.64	1.31	2.00	1.60	2.38	1.91													
	H	0.74	0.59	1.03	0.82	1.34	1.07	1.67	1.34	2.04	1.63	2.44	1.95													
10	PEF	C	126	101	160	128	197	158	237	190	280	224	327	262												
	A	111	89	141	113	173	139	209	167	246	197	288	230													
	H	113	91	144	115	177	142	213	171	252	202	294	235													
12	FEV1	C	0.9	0.72	1.22	0.98	1.57	1.26	1.94	1.55	2.35	1.88	2.79	2.23	3.25	2.60										
	A	0.79	0.63	1.07	0.86	1.38	1.11	1.71	1.37	2.07	1.65	2.46	1.96	2.86	2.29											
	H	0.81	0.65	1.10	0.88	1.41	1.13	1.75	1.40	2.12	1.69	2.51	2.01	2.93	2.34											
14	PEF	C	139	111	173	138	211	169	251	201	294	235	340	272	390	312										
	A	122	98	152	122	186	149	221	177	259	207	299	239	343	275											
	H	125	100	156	125	190	152	226	181	265	212	306	245	351	281											
16	FEV1	C	1.33	1.06	1.68	1.34	2.06	1.65	2.47	1.98	2.9	2.32	3.37	2.70	3.61	2.89										
	A	1.17	0.94	1.48	1.18	1.81	1.45	2.17	1.74	2.55	2.04	2.97	2.37	3.18	2.54											
	H	1.20	0.96	1.51	1.21	1.85	1.48	2.22	1.78	2.61	2.09	3.03	2.43	3.25	2.60											
18	PEF	C	193	154	230	184	271	217	314	251	360	288	410	328	436	349										
	A	170	136	202	162	238	191	276	221	317	253	361	289	384	307											
	H	174	139	207	166	244	195	283	226	324	259	369	295	392	314											
14	FEV1	C					1.83	1.46	2.21	1.77	2.62	2.10	3.05	2.44	3.52	2.82	3.76	3.01	4.01	3.21	4.27	3.42				
	A					1.61	1.29	1.94	1.56	2.31	1.84	2.68	2.15	3.10	2.48	3.31	2.65	3.53	2.82	3.76	3.01					
	H					1.65	1.32	1.99	1.59	2.36	1.89	2.75	2.20	3.17	2.53	3.38	2.71	3.61	2.89	3.84	3.07					
16	PEF	C					256	205	296	237	340	272	386	309	436	349	461	369	488	390	516	413				
	A					225	180	260	208	299	232	340	272	384	307	406	325	429	344	454	363					
	H					230	184	266	213	306	245	347	278	392	314	415	332	439	351	464	372					
18	FEV1	C					2.02	1.62	2.4	1.92	2.8	2.24	3.24	2.59	3.71	2.97	3.95	3.16	4.2	3.36	4.46	3.57	4.72	3.78		
	A					1.78	1.42	2.11	1.69	2.46	1.97	2.85	2.28	3.26	2.61	3.48	2.78	3.70	2.96	3.92	3.14	4.15	3.32			
	H					1.82	1.45	2.16	1.73	2.52	2.02	2.92	2.33	3.34	2.67	3.56	2.84	3.78	3.02	4.01	3.21	4.25	3.40			
18	PEF	C					289	231	329	263	373	298	419	335	468	374	494	395	521	417	548	438	577	462		
	A					254	203	290	232	328	263	369	295	412	329	435	348	458	367	482	386	508	406			
	H					260	208	296	237	336	269	377	302	421	337	445	356	469	375	493	395	519	415			
18	FEV1	C								3.03	2.42	3.46	2.77	3.93	3.14	4.17	3.34	4.42	3.54	4.68	3.74	4.95	3.96	5.22	4.18	
	A									2.67	2.13	3.04	2.44	3.46	2.77	3.67	2.94	3.89	3.11	4.12	3.29	4.36	3.48	4.59	3.67	
	H									2.73	2.18	3.11	2.49	3.54	2.83	3.75	3.00	3.98	3.18	4.21	3.37	4.46	3.56	4.70	3.76	
18	PEF	C								411	329	458	366	507	406	533	426	560	448	587	470	615	492	644	515	
	A									362	289	403	322	446	357	469	375	493	394	517	413	541	433	567	453	
	H									370	296	412	330	456	365	480	384	504	403	528	423	554	443	580	464	

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