TABLE E-1 Preoperative subject characteristics in both exercise groups and for both graft types

Surgical Procedure	Rehabilitation Group	Sex Male/Female	Age*† (yrs)	Height* (cm)	Body Mass* (kg)	Tegner Score*†
Hamstring graft	Eccentric (n=10)	5/5	35 ± 8	176 ± 9	82 ± 19	6.0 ± 1.2
	Standard (n=10)	5/5	36 ± 9	172 ± 9	78 ± 13	6.4 ± 1.7
Patellar tendon graft	Eccentric (n=10)	7/3	24 ± 5	177 ± 10	74 ± 15	7.4 ± 1.1
	Standard (n=10)	7/3	23 ± 4	178 ± 10	75 ± 10	7.2 ± 1.4
Both grafts combined	Eccentric (n=20)	12/8	29 ± 9	177 ± 9	78 ± 17	6.7 ± 1.3
	Standard (n=20)	12/8	29 ± 10	175 ± 10	77 ± 12	6.8 ± 1.7

*The values are given as the mean and the standard deviation. †Indicates that a significant difference was observed between graft types at the $p \leq 0.05$ level.

TABLE E-2 Pretraining and posttraining muscle volume (cm^3) in both rehabilitation groups and for both graft types

		Injured Limb*			Uninjured Limb*		
Muscle/ Graft Type	Rehabilitation Group	Pretraining	Posttraining	Percent Improved	Pretraining	Posttraining	Percent Improved
Quadriceps							
Hamstring graft	Eccentric (n=10)	1401 ± 442	†1775 ± 520	26.7 ± 9.2	1836 ± 452	†1983 ± 512	7.8 ± 3.0
	Standard (n=10)	1298 ± 231	†1447 ± 268	11.5 ± 10.5	1712 ± 296	1723 ± 315	0.6 ± 3.2
Patellar tendon graft	Eccentric (n=10)	1458 ± 432	†1747 ± 444	19.8 ± 16.4	1974 ± 452	†2253 ± 492	14.1 ± 4.5
	Standard (n=10)	1470 ± 243	†1566 ± 259	6.5 ± 8.3	2005 ± 357	†2101 ± 381	4.8 ± 2.7
Both grafts combined	Eccentric (n=20)	1430 ± 426	†1761 ± 470	23.1 ± 12.9	1905 ± 445	†2118 ± 512	11.2 ± 5.1
	Standard (n=20)	1384 ± 247	†1507 ± 264	8.8 ± 9.3	1859 ± 353	†1912 ± 389	3.0 ± 3.3
Gluteus Maximus							
Hamstring graft	Eccentric (n=10)	585 ± 162	†714 ± 167	21.6 ± 10.7	648 ± 189	†712 ± 193	9.9 ± 6.6
	Standard (n=10)	577 ± 137	†633 ± 137	9.8 ± 6.8	628 ± 161	632 ± 159	0.6 ± 5.4
Patellar tendon graft	Eccentric (n=10)	607 ± 191	†783 ± 262	29.1 ± 13.2	685 ± 192	†770 ± 204	12.4 ± 4.2
	Standard (n=10)	665 ± 163	†731 ± 135	9.9 ± 6.9	727 ± 164	758 ± 146	4.2 ± 5.1
Both grafts combined	Eccentric (n=20)	596 ± 173	†747 ± 216	25.3 ± 12.9	667 ± 186	†741 ± 193	11.1 ± 5.1
	Standard (n=20)	621 ± 156	†682 ± 145	9.8 ± 9.3	678 ± 167	695 ± 162	2.5 ± 6.1
Hamstrings							
Hamstring graft	Eccentric (n=10)	645 ± 179	661 ± 180	2.5 ± 3.2	696 ± 191	708 ± 182	1.7 ± 4.2
	Standard (n=10)	601 ± 156	624 ± 142	3.8 ± 3.1	645 ± 144	661 ± 148	2.5 ± 5.2
Patellar tendon graft	Eccentric (n=10)	700 ± 179	†740 ± 184	5.7 ± 6.4	727 ± 154	742 ± 161	2.1 ± 3.4
	Standard (n=10)	700 ± 122	†743 ± 142	6.1 ± 3.1	767 ± 142	773 ± 154	0.8 ± 2.6
Both grafts combined	Eccentric (n=20)	673 ± 177	†701 ± 182	4.1 ± 6.1	712 ± 169	725 ± 168	1.8 ± 3.8
	Standard (n=20)	651 ± 151	†684 ± 159	5.0 ± 6.5	706 ± 152	717 ± 158	1.6 ± 3.6
Gracilis							
Hamstring graft	Eccentric (n=10)	80 ± 35	†65 ± 27	-18.6 ± 7.0	106 ± 40	108 ± 37	1.8 ± 4.1
	Standard (n=10)	73 ± 25	†61 ± 21	-16.7 ± 12.4	87 ± 24	88 ± 39	1.0 ± 4.1
Patellar tendon graft	Eccentric (n=10)	93 ± 27	100 ± 24	6.9 ± 10.3	97 ± 26	99 ± 26	1.6 ± 4.1
	Standard (n=10)	96 ± 23	99 ± 25	3.3 ± 5.4	112 ± 22	112 ± 21	0.1 ± 4.0
Both grafts combined	Eccentric (n=20)	87 ± 31	83 ± 34	-5.6 ± 15.9	102 ± 33	104 ± 31	1.7 ± 5.4
	Standard (n=20)	85 ± 29	80 ± 30	-7.2 ± 14.0	99 ± 26	100 ± 32	0.6 ± 3.7

*The values are given as the mean and the standard deviation. †Indicates that a significant difference in muscle volume was observed between the pretraining and posttraining evaluations at the $p \leq 0.01$ level.

TABLE E-3. Individual quadriceps volume improvement (% change) that occurred over the 12-week training program, listed for each subject in the semitendinosus-gracilis graft cohort in order of most to least improvement of the involved side

Eccentric Group		Standard Group	
Involved Side	Uninvolved Side	Involved Side	Uninvolved Side
37.7	8.9	39.3	5.2
34.8	7.4	14.6	-1.1
33.0	7.4	12.8	-1.8
30.5	6.0	11.9	1.6
28.5	6.5	8.2	3.7
27.8	13.4	8.0	2.7
24.4	2.4	6.4	2.3
23.9	8.2	6.2	-4.8
20.9	10.9	4.2	-2.9
5.2	6.5	3.2	1.5

TABLE E-4. Individual quadriceps volume improvement (% change) that occurred over the 12-week training program, listed for each subject in the bone-patellar tendon-bone graft cohort in order of most to least improvement of the involved side

Eccentric Group		Standard Group	
Involved Side	Uninvolved Side	Involved Side	Uninvolved Side
52.5	20.4	23.2	6.0
45.0	15.7	19.7	9.4
30.5	18.7	7.7	3.5
21.6	14.3	6.8	6.2
20.4	17.9	4.7	0.8
14.8	9.0	4.0	5.3
13.3	12.8	4.0	7.2
11.8	6.8	1.8	5.2
8.6	10.8	0.0	1.1
0.4	17.8	-2.4	3.1

TABLE E-5 Pretraining and posttraining functional status measures in both rehabilitation groups and for both graft types

Surgical Procedure	Test	Rehabilitation Group	Quadriceps Index* (% of uninvolved score)	Hamstring Index* (% of uninvolved score)	Single-Leg-Hop Index* (% of uninvolved score)	Daily Living Scale* *(points)*	Lysholm Score* *(points)*	KT-1000*† *(mm)*
Hamstring graft	Pretraining	Eccentric (n=10)	74 ± 14	83 ± 14	72 ± 14	71 ± 11	66 ± 9	5.9 ± 1.9
		Standard (n=10)	78 ± 23	80 ± 29	72 ± 9	72 ± 12	65 ± 11	4.8 ± 2.0
Hamstring graft	Posttraining	Eccentric (n=10)	72 ± 11	75 ± 8	75 ± 19	85 ± 5	85 ± 9	2.0 ± 1.7
		Standard (n=10)	70 ± 17	75 ± 14	71 ± 17	86 ± 14	85 ± 16	1.7 ± 1.0
Patellar tendon graft	Pretraining	Eccentric (n=10)	77 ± 9	82 ± 20	69 ± 13	70 ± 11	69 ± 16	5.8 ± 3.1
		Standard (n=10)	81 ± 23	77 ± 22	67 ± 18	72 ± 9	64 ± 10	6.4 ± 2.2
Patellar tendon graft	Posttraining	Eccentric (n=10)	‡75 ± 14	84 ± 10	‡71 ± 13	79 ± 11	80 ± 11	1.1 ± 1.7
		Standard (n=10)	‡54 ± 17	79 ± 14	‡57 ± 16	81 ± 6	81 ± 10	1.6 ± 1.0
Both grafts combined	Pretraining	Eccentric (n=20)	76 ± 11	82 ± 18	71 ± 13	71 ± 10	67 ± 13	5.8 ± 2.5
		Standard (n=20)	80 ± 22	78 ± 25	69 ± 14	72 ± 10	64 ± 10	5.6 ± 2.2
Both grafts combined	Posttraining	Eccentric (n=20)	‡74 ± 12	80 ± 10	73 ± 16	82 ± 9	83 ± 10	1.6 ± 1.8
		Standard (n=20)	‡62 ± 19	77 ± 14	64 ± 17	84 ± 11	83 ± 13	1.7 ± 1.0

*Values are given as the mean and the standard deviation. †KT-1000 indicates the laxity difference between knees (with manual maximum force). ‡Indicates that a significant difference was observed between the eccentric and standard groups at the $p < 0.05$ level.