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APPENDICES

APPENDIX A

Informed Consent (In Thai)

แบบยินยอมอาสาสมัคร

ข้าพเจ้า (นาย, นาง, นางสาว).....นามสกุล.....อายุ.....ปี
อยู่บ้านเลขที่.....หมู่ที่.....ตำบล.....อำเภอ.....จังหวัด.....
ได้รับฟังคำอธิบายจาก นายพัฒนสิน อารีอุดมวงศ์ เกี่ยวกับการเป็นอาสาสมัครในโครงการวิจัยเรื่อง "ผลของท่านั่งต่อการล้าของกล้ามเนื้อหลังส่วนลึก (lumbar multifidus) และกล้ามเนื้อท้อง (internal oblique)" ได้รับทราบถึงรายละเอียดของโครงการวิจัยเกี่ยวกับ

- วัตถุประสงค์และระยะเวลาที่ทำการวิจัย
- ขั้นตอนและวิธีการปฏิบัติตัวที่ข้าพเจ้าต้องปฏิบัติ
- ผลประโยชน์ที่ข้าพเจ้าจะได้รับ
- ผลข้างเคียงหรืออันตรายที่อาจเกิดขึ้นจากการเข้าร่วมโครงการ

และข้าพเจ้าสามารถถอนตัวจากการศึกษานี้เมื่อใดก็ได้ถ้าข้าพเจ้าปรารถนา โดยไม่เสียสิทธิ์ใดๆ ในการรับการรักษาพยาบาลที่จะเกิดขึ้นตามมาในโอกาสต่อไปทั้งในปัจจุบันและอนาคตและหากเกิดมีอาการข้างเคียงขึ้น ข้าพเจ้าจะรายงานให้แพทย์หรือเจ้าหน้าที่ที่กำลังปฏิบัติงานอยู่ในขณะนั้นทราบทันที

ข้าพเจ้าได้อ่านและเข้าใจคำอธิบายข้างต้นแล้ว จึงได้ลงนามยินยอมเป็นอาสาสมัครของโครงการวิจัยดังกล่าว

ลายมือชื่ออาสาสมัคร.....

(.....)

ลายมือชื่อผู้ให้ข้อมูล.....

(.....)

พยาน..... (ไม่ใช่ผู้อธิบาย)

(.....)

วันที่.....เดือน.....พ.ศ.....

หมายเหตุ: (1) ในกรณีที่อาสาสมัครเป็นเด็กโตแต่อายุไม่ถึง 18 ปี สามารถตัดสินใจเองได้ให้ลงลายมือชื่อทั้งอาสาสมัคร (เด็ก) และผู้ปกครองด้วย

(2) พยานต้องไม่ใช่แพทย์หรือผู้วิจัย

(3) ผู้ให้ข้อมูล/คำอธิบายชัดเจนต้อง<u>ไม่เป็นแพทย์ผู้วิจัยเพื่อป้องกันการเข้าร่วมโครงการด้วยความเกรงใจ</u>

ข้าพเจ้าไม่สามารถอ่านหนังสือได้ แต่ผู้วิจัยได้อ่านข้อความในแบบยินยอมนี้ให้แก่ข้าพเจ้าฟังจนเข้าใจดี ข้าพเจ้าจึงประทับตราลายนิ้วมือขวาของข้าพเจ้าในแบบยินยอมนี้ด้วยความเต็มใจ

ลายมือชื่อผู้อธิบาย.....

(.....)

พยาน..... (ไม่ใช่ผู้อธิบาย)

(.....)

วันที่.....เดือน.....พ.ศ.....

ประทับลายนิ้วมือขวา

APPENDIX B

Recording Form (In Thai)

แบบสอบถามข้อมูลอาสาสมัครเรื่องผลของท่านั่งต่อการล้าของกล้ามเนื้อ lumbar multifidus และกล้ามเนื้อ internal oblique

เลขที่อาสาสมัคร……..

อายุ.....ปี .....เดือน อาชีพ…….....

น้ำหนัก.....กิโลกรัม ส่วนสูง.....เซนติเมตร ค่า BMI.....กิโลกรัม/เมตร^2

ข้อมูลด้านสุขภาพ

1. ท่านมีโรคประจำตัวหรือไม่
   - ☐ มี ระบุ……..
   - ☐ ไม่มี
2. ท่านออกกำลังกายบ่อยเพียงใด
   - ☐ ทุกวัน
   - ☐ วันเว้นวัน
   - ☐ 3 ครั้ง/สัปดาห์
   - ☐ ไม่เคยออกเลย
   - ☐ อื่นๆ ระบุ.....
3. รูปแบบชนิดของการออกกำลังกายของท่านคืออะไร
   - ☐ วิ่ง
   - ☐ ฟุตบอล
   - ☐ บาสเกตบอล
   - ☐ เล่นเวท
   - ☐ อื่นๆ ระบุ……
4. ท่านมีความผิดปกติเกี่ยวกับระบบกระดูกและกล้ามเนื้อหรือไม่
   - ☐ มี ระบุ……
   - ☐ ไม่มี
5. ในช่วง 6 เดือนที่ผ่านมาท่านเคยเข้ารับการผ่าตัดบริเวณใด ๆ ของร่างกายหรือไม่
   - ☐ เคย ระบุบริเวณที่ได้รับการผ่าตัด……
   - ☐ ไม่เคย
6. ในช่วง 6 เดือนที่ผ่านมาท่านมีอาการปวดหลังจนกระทั่งต้องรับประทานยาหรือไปพบแพทย์หรือไม่
   - ☐ ใช่
   - ☐ ไม่ใช่
7. ในช่วง 6 เดือนที่ผ่านมาท่านมีอาการปวดหลังจนต้องลาพักงานหรือไม่
   - ☐ ใช่
   - ☐ ไม่ใช่
8. ลักษณะงานที่ท่านทำเป็นประจำโปรดระบุ……..
9. ท่านนิยมนั่งวิปัสสนาสมาธิหรือไม่ถ้าใช่โปรดระบุเวลาที่ใช้ในการนั่ง
   - ☐ ใช่ ระบุเวลา……..นาที
   - ☐ ไม่ใช่
10. ท่านั่งบนพื้นที่ท่านนิยมนั่งคือท่าใดและนั่งเป็นระยะเวลานานที่สุดคือ
    - ☐ ท่านั่งขัดสมาธิ เป็นเวลา……นาที
    - ☐ ท่านั่งคุกเข่า เป็นเวลา……..นาที
    - ☐ ท่านั่งเหยียดขา เป็นเวลา……..นาที
    - ☐ ท่านั่งพับเพียบ เป็นเวลา……..นาที
    - ☐ ท่านั่งไขว้ห้าง เป็นเวลา……นาที
    - ☐ อื่น ๆ ระบุ.....เป็นเวลา……..นาที

APPENDIX C

Pilot Study

PILOT STUDY

Ten men participated in this pilot study. They were no any conditions that were listed in exclusion criteria. They signed informed consent and principle investigator explained about all procedures of this study. Each subject was asked to draw one of the cards from a hat on the first visit (crossed sitting or heel sitting postures) and another card for second visit. They performed each task for 30 minutes. The lower trunk discomfort using visual analogue scale (VAS) was determined.

Table C.1 Means and standard deviation of lower trunk discomfort using visual analogue scale (VAS) of crossed sitting and heel postures in 10 subjects

No	VAS from crossed sitting posture							VAS from heel sitting posture						
	0 min	5 min	10 min	15 min	20 min	25 min	30 min	0 min	5 min	10 min	15 min	20 min	25 min	30 min
1	0	1.55	1.65	2.55	4.90	6.00	7.15	0	0.60	1.60	3.25	3.25	3.90	4.60
2	0	1.90	2.45	3.45	4.90	5.35	6.35	0	1.75	4.05	5.05	5.40	4.30	4.75
3	0	1.65	1.80	3.00	4.15	4.80	5.20	0	1.15	3.10	4.65	4.85	4.70	4.70
4	0	1.40	3.20	4.50	7.75	7.40	8.10	0	0.40	1.10	2.10	4.05	5.55	6.60
5	0	0.10	0.10	0.10	1.20	1.25	2.25	0	0.10	0.15	0.30	0.40	0.40	0.80
6	0	0	3.25	4.70	8.80	8.95	9.15	0	1.20	4.75	5.85	6.90	8.10	8.00
7	0	2.00	4.20	5.85	7.45	7.55	8.50	0	1.70	2.00	3.30	3.45	3.20	3.90
8	0	0.10	1.30	3.10	5.60	6.25	6.95	0	0	0.90	2.20	4.70	4.75	5.25
9	0	1.00	2.30	3.40	5.70	6.40	6.90	0	0.90	1.70	1.90	2.50	3.55	3.65
10	0	0.20	0.35	0.35	1.60	2.00	3.50	0	0.20	0.35	0.85	1.10	1.60	1.35

Key: min = minute

APPENDIX D

Reliability Test

RELIABILITY TEST

Reliability test

The purpose of this process was to determine reliability of surface electromyography (sEMG) measurement.

Methods

Ten healthy men subjects participated in this process. All subjects performed three trials of lumbar multifidus (LM) activity measurement and internal oblique (IO) activity measurement for five seconds and was rest for three minutes in each trial (see Chapter III).

Intraclass correlation coefficient (ICC 3,1) were used to determine reliability of the activity measurements of LM and IO muscles. ICC (3,1) showed excellent reliability of both LM and IO activity measurements (Table D.1).

Table D.1 The reliability coefficients for the lumbar multifidus and internal oblique muscles measured on three consecutive trials using a surface electromyography (N=10)

Muscles	ICC (3,1)
Rt. Lumbar multifidus	0.99
Lt. lumbar multifidus	0.99
Rt. Internal oblique	0.99
Lt. Internal oblique	0.96

Key: ICC = intraclass correlation coefficients, **Rt.** = right, **Lt.** = left

Table D.2 Reliability of surface electromyographic measurement of lumbar multifidus (LM) and internal oblique (IO) muscles

Subject	Left LM			Right LM		
	Trial 1	**Trial 2**	**Trial 3**	**Trial 1**	**Trial 2**	**Trial 3**
1	0.0994	0.1107	0.1289	0.1557	0.1341	0.1478
2	0.1741	0.1649	0.1788	0.1173	0.0820	0.1382
3	0.1377	0.0964	0.0909	0.1100	0.1123	0.1083
4	0.2513	0.2407	0.2435	0.2495	0.2484	0.2454
5	0.1472	0.1541	0.1412	0.1945	0.2058	0.2180
6	0.2700	0.2760	0.2673	0.2743	0.2771	0.2771
7	0.5776	0.5767	0.5773	0.3211	0.3201	0.3201
8	0.1776	0.1773	0.1605	0.2325	0.2374	0.2490
9	0.0984	0.0927	0.0923	0.1300	0.1475	0.1475
10	0.1805	0.1842	0.1840	0.1404	0.1443	0.1455
	Left IO			**Right IO**		
1	0.0305	0.0271	0.0209	0.0556	0.0465	0.0384
2	0.0738	0.0628	0.0952	0.0544	0.0511	0.0688
3	0.0282	0.0267	0.0306	0.1426	0.1239	0.1016
4	0.0047	0.0044	0.0036	0.0845	0.0692	0.0740
5	0.0393	0.0349	0.0326	0.1081	0.1112	0.1083
6	0.0302	0.0352	0.0369	0.0349	0.0323	0.0303
7	0.0151	0.0169	0.0155	0.1851	0.1842	0.1852
8	0.0491	0.0459	0.0439	0.0096	0.0099	0.0095
9	0.0373	0.0321	0.0375	0.0291	0.0256	0.0251
10	0.0350	0.0366	0.0369	0.0111	0.0113	0.0115

Key: Rt. = right, **Lt.** = left

APPENDIX E

Raw Data of the Study

RAW DATA OF THE STUDY

Table E.1 Characteristic of subjects

Subject No.	Age (yrs)	Weight (kg)	Height (cm)	BMI (kg/m^2)
1	30	55	166	19.93
2	22	68	168	24.11
3	20	55	161	21.24
4	23	66.70	172	22.53
5	20	50	162	19.08
6	21	63	170	21.80
7	21	68	170	23.53
8	21	60	173	20.07
9	20	56	171	19.18
10	21	58	170	20.07
11	20	57	170	19.72
12	20	60	175	19.61
13	21	54	166	19.57
14	21	55	170	19.03
15	20	54	170	18.68
16	20	60	180	18.52
17	26	66	165	24.26
18	20	51	163	19.17
19	20	55	170	19.03
20	23	57	160	22.27
21	21	58	170	19.46
22	21	50	167	17.92
23	26	61	168	21.63

Key: No. = number, yrs = years, kg = kilogram, cm = centimeter, **kg/m^2** = kilogram per meter square

Table E.2 Visual analogue scale (VAS) of subjects in crossed sitting and heel sitting postures

Subject No./Sitting posture	VAS (centimeters)			
	Crossed sitting posture		Heel sitting posture	
	0 minute	30 minutes	0 minute	30 minutes
1	0	7.15	0	4.60
2	0	6.35	0	4.75
3	0	5.20	0	4.70
4	0	8.10	0	6.60
5	0	2.25	0	0.80
6	0	9.15	0	8.00
7	0	8.50	0	3.90
8	0	6.95	0	5.25
9	0	6.90	0	3.65
10	0	3.50	0	1.35
11	0	6.00	0	2.35
12	0	0	0	0
13	0	8.35	0	8.50
14	0	5.80	0	4.20
15	0	5.05	0	6.55
16	0	4.65	0	5.30
17	0	6.80	0	5.10
18	0	6.35	0	4.75
19	0	4.70	0	2.10
20	0	4.65	0	2.10
21	0	1.90	0	2.70
22	0	3.45	0	2.45
23	0	1.45	0	0.95

Key: No. = number

Table E.3 Normalized median frequency (%) of subject no. 1 of lumbar multifidus (LM) and internal oblique (IO) muscles in crossed sitting and heel sitting postures

Time (min)/Muscles	Normalized median frequency (%)							
	Crossed sitting posture				Heel sitting posture			
	Rt. LM	Lt. LM	Rt. IO	Lt. IO	Rt. LM	Lt. LM	Rt. IO	Lt. IO
1	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
2	97.45	98.54	87.61	80.00	98.78	98.76	92.06	98.62
3	97.10	99.09	88.10	92.01	97.38	97.33	96.76	93.72
4	97.10	97.82	91.04	85.28	98.60	98.76	94.00	90.35
5	97.73	99.66	98.06	98.06	98.00	98.35	91.52	93.76
6	98.18	95.80	86.80	85.12	97.20	97.33	99.03	92.33
7	96.92	98.00	86.96	88.64	94.58	98.06	96.43	90.95
8	97.45	96.72	85.33	92.97	96.51	96.45	99.53	93.40
9	97.10	97.82	89.74	89.61	94.40	98.24	99.20	89.57
10	97.38	99.12	97.26	97.26	97.28	95.45	88.10	90.73
11	94.91	95.61	88.27	90.45	93.18	98.06	97.26	97.55
12	96.18	95.45	85.99	90.25	94.22	98.42	97.40	93.09
13	98.18	95.26	91.21	95.69	95.98	98.76	98.87	95.54
14	95.65	96.32	92.82	95.53	95.45	99.48	96.43	89.44
15	96.51	98.42	96.76	96.76	95.47	95.26	88.10	90.24
16	95.47	95.80	87.61	92.32	95.80	99.30	97.57	92.18
17	94.57	96.13	88.27	88.64	97.02	97.51	94.49	91.42
18	94.91	95.35	85.83	93.93	96.69	97.33	98.87	92.49
19	94.91	96.09	89.24	88.96	97.56	98.24	97.40	89.88
20	95.11	97.87	96.43	96.43	95.47	95.80	88.10	90.16
21	96.36	95.35	88.27	86.56	98.25	96.81	90.76	90.80
22	94.57	96.54	86.63	82.56	95.62	95.91	90.76	90.51
23	96.92	96.35	85.33	94.00	94.05	94.30	87.67	84.03
24	94.91	95.19	85.99	86.56	92.65	94.85	87.03	91.58
25	95.11	96.45	96.27	96.27	94.91	96.00	88.10	86.89
26	94.57	94.72	88.10	88.01	93.71	97.51	96.60	90.35
27	96.92	94.26	94.45	84.96	95.80	96.63	95.79	93.15
28	94.57	94.19	91.35	94.03	95.62	92.90	85.23	92.68
29	95.10	96.54	86.96	84.64	93.71	97.51	99.53	84.98
30	94.58	96.27	95.96	95.96	94.57	96.17	85.33	86.40

Key: min = minute, **Rt.** = right, **Lt.** = left

Table E.4 Normalized median frequency (%) of subject no. 2 of lumbar multifidus (LM) and internal oblique (IO) muscles in crossed sitting and heel sitting postures

Time (min)/Muscles	Normalized median frequency (%)							
	Crossed sitting posture				Heel sitting posture			
	Rt. LM	Lt. LM	Rt. IO	Lt. IO	Rt. LM	Lt. LM	Rt. IO	Lt. IO
1	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
2	94.04	97.43	99.03	97.43	98.09	96.89	95.44	93.88
3	95.96	97.04	98.06	97.04	97.24	96.72	98.00	94.92
4	96.35	98.62	98.45	99.01	98.62	95.69	95.79	98.13
5	99.65	98.80	99.65	96.77	98.66	99.21	97.48	99.21
6	94.04	98.22	91.87	98.22	98.97	97.24	97.26	95.59
7	94.23	98.62	97.09	98.81	96.89	97.42	97.07	94.06
8	94.07	99.81	94.00	99.60	99.47	97.83	92.69	93.22
9	93.65	99.01	97.09	99.01	98.97	96.72	97.26	94.92
10	99.32	97.42	97.07	95.07	93.27	98.62	95.94	98.62
11	95.00	97.63	99.03	97.63	97.94	97.24	93.79	97.63
12	93.27	99.01	95.36	99.01	98.97	98.10	92.51	94.92
13	94.04	98.62	96.90	98.62	100.00	97.92	94.51	92.38
14	95.39	97.63	92.46	97.63	95.18	92.59	94.51	83.72
15	98.09	95.69	95.79	93.73	93.06	98.22	94.78	98.22
16	93.08	97.43	93.03	97.43	98.27	98.27	97.80	94.75
17	96.35	98.22	93.81	98.22	95.01	94.49	96.35	93.04
18	94.81	92.22	93.81	98.22	98.97	94.84	96.91	91.17
19	91.16	98.42	97.48	98.22	99.47	96.22	93.04	93.22
20	97.94	95.34	95.07	93.56	92.88	97.83	94.39	97.83
21	89.23	93.21	94.19	96.21	98.44	97.83	97.63	97.95
22	89.62	93.41	96.52	97.41	99.32	98.10	95.98	94.75
23	90.39	92.43	94.58	97.43	100.00	98.97	98.19	94.92
24	91.16	94.01	97.29	97.01	99.15	96.39	97.07	97.11
25	97.06	95.34	93.79	92.38	90.77	96.99	91.87	97.83
26	91.92	94.81	95.16	96.81	95.51	93.46	95.98	95.07
27	92.50	97.63	95.36	97.63	95.68	93.96	93.04	95.24
28	91.15	93.24	96.90	97.24	93.63	94.14	99.65	95.76
29	92.69	93.43	94.19	97.43	95.86	94.31	92.51	90.50
30	96.56	95.19	90.67	92.03	90.00	93.83	91.48	97.22

Key: min = minute, **Rt.** = right, **Lt.** = left

Table E.5 Normalized median frequency (%) of subject no. 3 of lumbar multifidus (LM) and internal oblique (IO) muscles in crossed sitting and heel sitting postures

Time (min)/Muscles	Normalized median frequency (%)							
	Crossed sitting posture				Heel sitting posture			
	Rt. LM	Lt. LM	Rt. IO	Lt. IO	Rt. LM	Lt. LM	Rt. IO	Lt. IO
1	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
2	93.59	97.70	87.21	95.48	97.28	95.44	93.70	97.81
3	95.90	97.00	95.10	97.42	97.06	96.00	97.28	95.36
4	92.89	98.05	99.54	99.18	96.85	93.27	96.78	92.57
5	98.34	99.28	95.91	98.09	98.23	98.05	97.63	100.00
6	91.80	96.65	85.79	87.77	96.45	99.63	95.07	92.57
7	97.33	98.41	84.85	85.50	98.75	98.91	92.51	93.22
8	95.90	99.46	84.68	86.95	97.06	99.63	96.78	90.57
9	95.90	98.05	85.15	83.57	96.66	93.98	92.86	84.96
10	96.85	95.26	95.41	96.54	96.99	97.88	89.36	90.65
11	88.97	94.01	81.35	84.53	94.34	91.81	93.01	90.74
12	88.43	96.47	84.20	84.86	97.28	97.08	93.70	92.40
13	92.34	98.05	87.68	84.06	96.66	90.16	95.24	89.92
14	97.17	97.52	86.57	94.51	96.45	98.54	93.36	94.20
15	96.45	94.54	94.55	96.12	93.95	96.65	86.11	84.53
16	96.26	96.11	82.62	87.91	97.28	93.45	95.07	97.19
17	98.75	98.23	91.15	87.44	98.13	89.61	94.55	93.72
18	90.03	98.23	82.62	83.74	93.91	93.45	93.36	86.94
19	89.85	94.54	82.62	83.24	96.85	93.64	89.79	85.78
20	95.81	93.80	91.99	96.03	90.55	94.93	82.48	84.37
21	93.59	95.77	82.78	83.74	96.45	92.18	94.05	85.45
22	88.97	94.29	79.14	83.08	96.85	91.44	94.55	84.96
23	87.36	94.47	80.57	82.28	96.02	91.62	91.99	94.54
24	91.64	95.95	82.94	84.37	98.96	93.98	93.70	89.83
25	95.38	93.08	91.64	95.21	90.55	94.36	81.21	83.41
26	95.56	94.54	81.51	82.77	90.00	95.26	92.57	93.89
27	98.60	97.70	80.73	83.90	93.60	93.64	93.88	93.39
28	97.51	94.82	81.67	86.78	94.17	93.80	88.42	90.71
29	88.97	94.70	79.14	83.57	92.24	93.45	92.33	89.96
30	94.49	91.62	91.32	85.78	86.27	92.95	78.04	83.41

Key: min = minute, **Rt.** = right, **Lt.** = left

Table E.6 Normalized median frequency (%) of subject no. 4 of lumbar multifidus (LM) and internal oblique (IO) muscles in crossed sitting and heel sitting postures

Time (min)/Muscles	Normalized median frequency (%)							
	Crossed sitting posture				Heel sitting posture			
	Rt. LM	Lt. LM	Rt. IO	Lt. IO	Rt. LM	Lt. LM	Rt. IO	Lt. IO
1	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
2	95.34	93.41	93.79	98.62	95.92	98.34	97.62	98.97
3	96.77	99.28	93.97	95.00	97.41	97.06	97.10	99.65
4	98.21	98.53	91.38	95.35	96.86	95.41	97.97	99.30
5	97.22	99.07	99.83	96.89	99.09	99.65	96.03	99.82
6	94.64	92.69	94.65	96.55	96.49	95.94	97.28	99.65
7	89.98	92.69	87.05	96.03	97.78	93.75	98.81	90.18
8	89.61	99.46	93.26	95.35	96.86	96.32	98.81	91.91
9	98.57	97.81	97.59	93.97	96.49	99.44	97.62	93.81
10	97.03	99.07	98.47	96.54	98.57	99.28	95.68	98.79
11	96.41	92.32	94.65	95.17	97.78	98.17	98.98	99.65
12	96.58	97.81	92.23	98.62	95.92	94.48	98.81	92.08
13	98.39	98.00	94.29	100.00	95.73	92.10	98.47	95.34
14	98.39	97.81	95.17	99.14	97.03	98.53	98.29	96.72
15	96.68	98.34	98.29	96.22	96.07	98.91	95.00	96.38
16	98.21	99.46	95.35	97.59	96.11	98.34	97.28	93.11
17	98.75	96.35	95.00	90.85	97.78	98.16	99.48	96.04
18	98.39	99.84	94.65	92.06	97.03	97.41	98.47	97.42
19	91.05	99.00	92.41	95.35	96.86	95.41	99.48	93.64
20	96.30	93.01	96.76	96.22	95.89	98.91	94.29	96.20
21	95.71	95.44	92.06	94.82	96.30	93.19	99.33	97.92
22	95.52	98.72	93.61	95.17	96.11	93.75	98.47	96.89
23	97.66	92.32	92.76	90.85	97.60	97.97	98.29	93.81
24	91.96	99.18	94.14	97.06	97.78	95.03	98.29	95.87
25	95.54	90.44	94.55	93.81	93.91	98.18	92.91	92.58
26	90.86	89.57	94.47	88.94	95.54	93.19	95.92	93.46
27	95.89	96.53	81.02	91.38	96.30	95.41	98.12	97.92
28	98.39	97.63	83.09	95.52	96.33	96.88	95.64	94.14
29	97.14	90.00	85.35	92.41	91.60	96.13	94.12	97.07
30	90.60	90.44	90.00	92.08	90.34	92.32	85.52	89.47

Key: min = minute, **Rt.** = right, **Lt.** = left

Table E.7 Normalized median frequency (%) of subject no. 5 of lumbar multifidus (LM) and internal oblique (IO) muscles in crossed sitting and heel sitting postures

Time (min)/Muscles	Normalized median frequency (%)							
	Crossed sitting posture				Heel sitting posture			
	Rt. LM	Lt. LM	Rt. IO	Lt. IO	Rt. LM	Lt. LM	Rt. IO	Lt. IO
1	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
2	94.49	97.32	97.05	87.57	95.55	98.20	98.59	95.26
3	93.81	97.15	96.68	89.72	96.82	98.75	96.28	94.95
4	95.19	97.81	95.77	91.21	98.06	97.49	95.21	93.48
5	92.99	99.82	95.23	94.45	97.59	98.82	97.59	98.50
6	96.04	96.12	96.14	93.70	89.35	96.24	95.77	95.26
7	92.76	99.68	98.34	95.85	90.23	98.02	96.12	92.65
8	92.26	98.33	96.49	95.20	91.47	96.58	95.59	93.15
9	91.38	96.63	96.30	96.35	90.41	96.24	96.12	92.82
10	91.83	98.20	94.71	93.65	96.89	98.50	96.68	90.54
11	98.10	97.15	95.95	96.02	90.05	94.98	94.53	86.47
12	99.83	98.50	95.77	94.52	90.77	92.11	94.53	91.68
13	97.59	97.98	94.65	98.67	90.59	93.36	94.35	87.46
14	99.30	96.80	96.86	99.35	88.99	91.20	92.94	87.77
15	91.65	96.42	93.64	93.32	96.54	97.81	95.95	90.39
16	96.39	95.79	94.29	88.39	92.19	91.38	95.05	87.94
17	90.71	96.97	95.02	91.38	93.61	91.01	95.23	92.99
18	91.06	97.64	95.77	91.05	92.37	93.73	93.64	92.99
19	92.76	97.64	96.14	90.22	88.65	92.63	95.05	92.51
20	91.13	93.36	93.30	91.35	95.19	96.97	95.77	89.06
21	91.56	95.79	94.39	94.52	88.65	94.62	95.23	92.82
22	92.94	97.98	93.78	89.72	88.81	95.51	94.87	90.54
23	92.43	96.12	93.96	88.90	86.50	96.05	94.17	91.52
24	93.11	95.45	95.39	87.57	91.89	96.58	94.80	90.21
25	90.77	92.45	93.30	89.90	93.96	96.97	91.20	89.06
26	93.29	97.47	91.36	88.56	92.17	98.38	99.64	89.24
27	95.34	95.62	91.67	87.88	91.13	94.80	94.87	95.76
28	97.42	97.98	92.83	90.71	91.13	93.73	90.35	85.83
29	93.29	96.80	92.95	89.38	92.05	93.54	86.64	89.24
30	90.23	91.74	88.92	86.16	91.06	96.46	93.36	86.89

Key: min = minute, **Rt.** = right, **Lt.** = left

Table E.8 Normalized median frequency (%) of subject no. 6 of lumbar multifidus (LM) and internal oblique (IO) muscles in crossed sitting and heel sitting postures

Time (min)/Muscles	Normalized median frequency (%)							
	Crossed sitting posture				Heel sitting posture			
	Rt. LM	Lt. LM	Rt. IO	Lt. IO	Rt. LM	Lt. LM	Rt. IO	Lt. IO
1	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
2	95.39	94.82	98.78	95.83	94.54	98.43	98.94	97.90
3	95.91	96.38	98.24	98.73	95.06	98.25	99.12	98.60
4	94.48	94.65	96.15	96.17	96.47	98.78	99.47	97.19
5	97.36	99.47	98.62	98.95	99.12	99.82	97.73	96.73
6	98.24	97.24	95.79	95.46	97.70	98.08	96.69	94.38
7	99.18	97.94	91.94	95.83	99.53	99.82	94.95	93.16
8	95.73	99.32	92.81	98.92	92.06	97.22	94.09	98.60
9	98.58	99.65	93.17	96.01	90.14	98.25	95.13	96.32
10	97.36	99.29	96.77	97.90	97.33	98.79	97.20	95.74
11	91.63	96.20	95.97	98.18	97.70	97.22	91.31	98.08
12	96.45	98.27	97.55	95.64	98.05	98.43	94.77	97.37
13	98.24	97.59	97.55	97.28	96.65	95.65	94.44	97.37
14	98.58	97.24	96.68	96.17	98.75	95.82	89.06	93.87
15	96.65	98.55	95.66	97.73	96.45	97.06	95.10	95.27
16	95.03	98.79	95.46	93.45	97.36	96.33	93.56	93.16
17	95.91	98.11	91.94	93.82	99.64	100.00	92.17	94.74
18	92.36	98.97	92.48	95.64	93.83	96.18	89.39	99.31
19	90.21	93.26	94.39	93.45	90.65	95.47	88.00	96.68
20	96.47	97.04	92.88	95.27	96.09	95.35	94.21	91.74
21	97.69	93.26	93.52	94.01	96.11	96.69	91.99	97.37
22	97.69	95.85	95.10	93.82	95.95	96.43	94.09	94.92
23	95.91	98.97	90.90	95.27	93.29	96.00	94.77	98.77
24	95.21	98.44	89.85	94.19	95.95	95.29	94.27	93.87
25	95.06	96.00	92.35	93.16	95.73	95.00	93.70	94.19
26	95.03	96.88	90.90	95.64	96.65	94.61	94.95	94.23
27	99.12	96.88	95.61	94.82	96.47	98.33	94.99	94.56
28	92.18	96.88	96.12	95.83	95.24	97.73	96.44	96.14
29	96.63	96.73	95.28	93.45	95.06	99.90	99.06	90.01
30	90.65	95.29	88.71	89.48	90.75	88.08	92.99	94.19

Key: min = minute, **Rt.** = right, **Lt.** = left

Table E.9 Normalized median frequency (%) of subject no. 7 of lumbar multifidus (LM) and internal oblique (IO) muscles in crossed sitting and heel sitting postures

Time (min)/Muscles	Normalized median frequency (%)							
	Crossed sitting posture				Heel sitting posture			
	Rt. LM	Lt. LM	Rt. IO	Lt. IO	Rt. LM	Lt. LM	Rt. IO	Lt. IO
1	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
2	98.22	97.66	98.41	98.97	96.55	94.47	91.96	98.96
3	97.35	96.59	99.82	97.07	98.97	97.69	97.28	95.86
4	92.40	97.30	98.59	99.15	96.90	97.17	99.47	99.49
5	97.42	96.99	99.09	99.49	98.22	98.92	98.93	98.45
6	99.46	96.22	98.05	98.45	97.07	97.51	93.05	99.14
7	96.47	96.22	98.59	96.54	97.25	94.47	93.05	99.14
8	90.98	92.45	98.59	98.27	97.93	99.12	93.43	97.58
9	94.69	97.85	96.82	95.21	98.28	96.99	97.07	98.96
10	97.25	95.90	97.82	99.14	97.35	98.21	98.05	97.92
11	99.64	96.77	98.23	97.77	99.13	96.81	97.82	98.11
12	96.81	96.04	98.05	98.97	96.55	97.17	92.52	98.79
13	99.46	95.49	97.18	96.89	95.35	94.31	97.07	97.58
14	99.28	99.29	99.46	97.42	97.07	92.71	97.07	96.54
15	96.90	94.84	97.44	97.93	93.97	97.12	97.88	97.59
16	98.04	97.66	97.52	95.34	96.55	92.53	97.07	97.93
17	98.76	93.70	97.52	96.04	93.98	93.59	93.98	98.79
18	92.86	97.12	98.93	98.62	94.50	93.77	96.35	97.23
19	90.08	95.67	97.36	96.72	96.55	93.59	92.87	99.32
20	95.83	94.13	97.28	97.58	93.97	95.49	97.18	95.52
21	95.75	93.89	97.36	97.77	93.02	93.41	94.89	97.23
22	98.94	91.71	96.82	99.15	94.15	93.59	94.89	96.30
23	87.79	99.29	96.47	99.83	93.52	93.41	93.61	97.07
24	91.50	94.41	98.23	96.54	95.02	93.41	93.05	95.68
25	95.10	93.41	97.07	96.77	93.10	92.49	96.11	95.34
26	92.04	92.45	95.06	97.07	93.78	92.89	92.52	96.54
27	90.98	91.35	98.05	95.01	93.73	94.47	88.32	95.77
28	93.46	92.30	97.36	94.84	94.25	93.23	94.52	95.82
29	92.92	92.41	97.36	94.62	94.25	93.41	98.35	99.61
30	94.02	91.98	95.08	96.09	91.32	94.07	94.36	94.62

Key: min = minute, **Rt.** = right, **Lt.** = left

Table E.10 Normalized median frequency (%) of subject no. 8 of lumbar multifidus (LM) and internal oblique (IO) muscles in crossed sitting and heel sitting postures

Time (min)/Muscles	Normalized median frequency (%)							
	Crossed sitting posture				Heel sitting posture			
	Rt. LM	Lt. LM	Rt. IO	Lt. IO	Rt. LM	Lt. LM	Rt. IO	Lt. IO
1	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
2	99.32	98.93	97.04	97.43	98.20	95.52	98.43	95.74
3	98.79	98.20	96.49	98.53	98.75	97.42	97.22	96.44
4	98.85	97.49	96.49	96.68	98.75	95.02	97.90	97.17
5	98.57	97.60	98.94	99.30	99.65	98.38	96.49	97.78
6	99.50	99.29	97.22	96.14	98.39	98.28	92.00	93.23
7	98.97	97.67	99.08	95.02	98.93	98.10	98.61	99.30
8	98.44	97.86	99.27	95.02	97.66	96.73	99.47	98.75
9	99.14	100.00	96.68	95.20	98.39	96.22	98.25	99.12
10	97.84	97.60	98.25	98.75	99.32	98.20	96.49	96.86
11	99.17	97.49	96.31	95.20	97.66	97.25	97.72	99.12
12	97.41	99.64	96.31	94.83	98.20	96.05	96.51	97.69
13	99.82	98.20	96.31	95.20	96.95	97.01	97.39	97.17
14	98.11	97.49	96.49	94.29	97.66	97.25	96.51	98.23
15	97.66	97.42	96.86	97.87	99.32	97.67	96.31	96.86
16	97.94	98.31	96.49	92.26	95.89	94.85	97.04	97.17
17	99.14	97.31	96.31	93.00	95.52	94.67	97.55	96.99
18	97.06	94.80	96.31	95.77	97.14	96.22	98.61	98.94
19	98.44	99.11	96.49	94.29	96.07	96.90	97.22	99.48
20	96.41	96.73	96.33	97.33	98.27	97.13	96.31	96.14
21	99.32	98.38	96.31	94.10	95.34	96.90	97.55	96.81
22	96.73	98.38	96.31	96.30	97.32	98.10	95.82	97.69
23	98.79	99.82	96.31	95.95	98.57	97.75	95.47	98.41
24	99.16	98.02	96.49	96.14	96.59	98.10	96.00	96.23
25	96.23	96.55	96.00	95.33	97.41	96.76	96.31	93.54
26	98.44	96.94	96.49	94.10	97.32	93.47	93.90	95.75
27	97.24	97.67	96.49	95.58	96.07	92.10	95.47	95.17
28	99.32	95.69	96.68	95.95	98.57	92.95	95.47	95.05
29	97.59	97.49	96.49	95.02	96.41	92.10	96.86	95.90
30	96.07	92.27	95.12	96.08	96.73	95.51	96.31	93.54

Key: min = minute, **Rt.** = right, **Lt.** = left

Table E.11 Normalized median frequency (%) of subject no. 9 of lumbar multifidus (LM) and internal oblique (IO) muscles in crossed sitting and heel sitting postures

Time (min)/Muscles	Normalized median frequency (%)							
	Crossed sitting posture				Heel sitting posture			
	Rt. LM	Lt. LM	Rt. IO	Lt. IO	Rt. LM	Lt. LM	Rt. IO	Lt. IO
1	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
2	96.23	97.93	97.62	98.04	98.60	99.64	94.06	97.59
3	97.46	98.11	97.94	99.72	96.67	96.23	96.67	99.30
4	98.06	97.20	98.29	97.21	96.52	98.75	95.63	98.11
5	99.65	99.09	97.56	97.41	97.82	97.76	98.11	98.55
6	96.23	96.00	98.29	96.55	95.28	97.84	96.52	95.02
7	97.01	98.11	97.62	96.55	98.60	97.14	97.38	92.04
8	96.41	98.27	98.46	99.55	94.94	96.23	96.67	96.56
9	97.12	98.80	94.21	96.70	97.56	99.27	96.67	95.71
10	97.38	97.50	96.34	93.82	96.23	97.58	97.45	97.21
11	98.17	98.11	98.29	97.21	97.03	99.45	99.29	94.34
12	96.59	95.64	97.62	98.89	86.56	86.75	88.82	97.93
13	97.46	94.98	96.93	99.55	95.99	98.39	96.16	98.46
14	96.77	97.76	98.11	98.38	94.94	89.09	89.87	98.28
15	93.73	96.07	95.45	93.32	95.87	97.37	97.10	97.21
16	96.05	95.64	97.79	98.72	92.33	91.59	94.24	96.39
17	97.50	95.31	95.68	97.04	93.02	91.59	96.34	96.04
18	96.16	94.95	93.68	95.87	94.06	97.32	98.78	97.09
19	96.41	96.89	93.74	94.40	93.37	92.82	94.41	98.78
20	92.66	94.27	93.73	92.10	95.72	96.53	96.43	97.21
21	97.99	94.95	96.17	95.04	89.00	98.02	88.82	93.32
22	96.41	96.00	97.27	95.00	94.59	90.68	87.61	91.26
23	96.41	97.40	96.09	95.23	96.52	95.18	87.25	95.37
24	95.87	95.64	96.93	96.87	95.45	91.95	95.63	95.71
25	90.75	91.59	91.11	88.01	95.36	96.00	95.10	96.87
26	95.87	95.82	95.91	97.40	94.77	97.50	96.34	94.84
27	93.47	97.93	94.00	99.89	94.94	98.93	93.37	94.34
28	94.58	93.15	94.17	96.21	97.21	98.39	95.28	91.43
29	96.23	96.35	93.85	91.84	95.81	94.98	92.48	92.80
30	87.10	91.59	88.82	87.49	94.13	95.40	94.00	96.40

Key: min = minute, **Rt.** = right, **Lt.** = left

Table E.12 Normalized median frequency (%) of subject no. 10 of lumbar multifidus (LM) and internal oblique (IO) muscles in crossed sitting and heel sitting posture

Time (min)/Muscles	Normalized median frequency (%)							
	Crossed sitting posture				Heel sitting posture			
	Rt. LM	Lt. LM	Rt. IO	Lt. IO	Rt. LM	Lt. LM	Rt. IO	Lt. IO
1	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
2	98.45	96.01	98.92	99.30	99.11	99.65	98.17	96.50
3	97.77	98.84	98.92	91.98	97.03	98.61	93.53	96.50
4	98.97	99.35	96.73	96.26	99.29	98.76	91.55	96.04
5	97.65	96.69	93.70	96.81	98.97	99.66	99.63	98.05
6	97.59	98.84	93.82	96.44	98.43	96.87	96.69	97.87
7	99.48	96.01	99.26	98.60	98.78	94.44	97.35	99.40
8	98.97	97.85	97.63	97.87	97.39	94.62	93.87	98.63
9	99.83	99.83	99.08	97.33	97.57	90.96	94.35	95.28
10	96.86	94.62	92.54	95.75	98.97	99.66	98.55	97.51
11	95.87	98.33	96.01	98.23	96.17	94.44	93.70	97.25
12	96.89	96.86	95.64	97.87	97.57	94.09	97.18	96.19
13	95.34	97.51	96.73	96.63	97.03	95.30	98.84	96.50
14	96.04	98.67	98.92	96.08	95.82	92.88	97.18	97.72
15	94.50	93.05	92.37	94.22	98.62	99.01	97.99	97.51
16	96.72	98.84	99.08	95.38	96.68	94.09	91.72	91.32
17	97.77	98.84	98.73	86.64	95.99	93.56	91.87	94.22
18	98.97	99.51	97.28	92.16	96.86	92.17	93.19	95.28
19	98.62	98.50	92.00	96.81	97.90	94.09	94.52	95.13
20	96.17	92.52	92.04	92.25	98.10	98.67	97.09	96.08
21	96.22	96.69	96.36	98.23	94.60	86.79	91.55	99.96
22	95.34	94.51	92.55	94.84	92.67	94.09	91.38	87.97
23	98.97	97.51	97.63	96.26	96.17	98.18	91.38	91.32
24	98.10	98.02	96.01	98.23	95.46	89.39	94.52	92.09
25	95.82	91.13	90.05	91.94	97.92	97.34	94.92	95.22
26	98.62	99.66	97.81	95.02	96.17	95.83	90.88	98.13
27	97.42	95.18	99.45	98.22	95.29	94.44	90.22	96.00
28	96.54	95.02	95.45	95.22	93.71	98.18	91.55	93.62
29	95.87	96.52	96.73	95.02	95.21	95.66	90.05	93.46
30	95.82	90.27	89.72	91.94	96.22	95.84	91.10	98.61

Key: min = minute, **Rt.** = right, **Lt.** = left

Table E.13 Normalized median frequency (%) of subject no. 11 of lumbar multifidus (LM) and internal oblique (IO) muscles in crossed sitting and heel sitting posture

Time (min)/Muscles	Normalized median frequency (%)							
	Crossed sitting posture				Heel sitting posture			
	Rt. LM	Lt. LM	Rt. IO	Lt. IO	Rt. LM	Lt. LM	Rt. IO	Lt. IO
1	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
2	98.09	98.89	98.93	99.82	92.90	96.06	95.99	98.42
3	98.66	97.58	97.67	98.56	89.91	97.08	98.61	95.77
4	98.28	96.84	99.82	98.38	90.28	97.42	99.48	95.42
5	92.16	98.62	100.00	97.90	96.73	97.95	98.93	96.19
6	94.82	97.21	99.64	90.39	92.53	98.98	97.75	97.90
7	95.76	91.84	97.85	96.01	92.72	99.15	97.40	99.12
8	98.85	94.05	98.38	96.37	89.17	97.94	98.44	96.82
9	96.16	94.44	98.02	97.47	91.23	96.23	96.88	95.77
10	90.86	97.42	99.31	96.29	96.16	93.68	98.20	96.19
11	96.54	92.20	97.31	98.01	88.43	96.57	99.65	95.06
12	96.54	98.71	95.36	98.19	88.48	89.72	95.13	97.00
13	92.70	93.68	96.25	95.46	88.24	95.55	96.53	98.25
14	95.59	95.73	95.01	94.74	88.61	98.98	96.53	94.54
15	89.73	96.06	98.44	94.37	95.97	92.76	96.60	91.47
16	99.24	96.29	97.49	94.30	89.17	96.57	98.27	86.43
17	94.63	90.73	90.34	90.93	89.54	96.74	94.61	97.00
18	95.59	94.81	96.07	95.83	88.61	94.17	95.13	95.77
19	94.25	92.39	94.45	90.39	87.87	94.68	97.57	93.29
20	89.17	94.87	98.09	94.19	94.82	92.76	95.36	91.11
21	91.17	89.05	90.17	93.84	90.28	92.78	96.71	92.76
22	94.06	93.13	92.85	96.75	87.13	91.78	98.27	95.42
23	90.00	90.36	93.74	96.57	89.17	95.44	94.78	95.77
24	92.82	91.84	94.10	97.47	90.28	93.83	95.65	94.19
25	88.80	94.74	97.23	94.01	92.44	91.47	93.74	90.75
26	92.32	93.50	96.43	90.86	88.98	90.57	97.40	97.45
27	94.82	89.97	93.92	93.66	88.43	94.51	98.09	97.90
28	91.36	93.68	95.01	90.03	89.17	94.57	95.13	97.00
29	92.78	90.54	94.10	89.12	86.94	94.72	93.91	97.90
30	85.81	93.32	95.65	92.76	93.49	90.54	93.03	88.02

Key: min = minute, **Rt.** = right, **Lt.** = left

Table E.14 Normalized median frequency (%) of subject no. 12 of lumbar multifidus (LM) and internal oblique (IO) muscles in crossed sitting and heel sitting posture

Time (min)/Muscles	Normalized median frequency (%)							
	Crossed sitting posture				Heel sitting posture			
	Rt. LM	Lt. LM	Rt. IO	Lt. IO	Rt. LM	Lt. LM	Rt. IO	Lt. IO
1	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
2	97.97	99.82	96.89	96.49	96.84	98.17	96.76	98.40
3	96.94	99.09	95.25	96.67	97.39	99.67	98.81	98.90
4	97.97	96.59	97.64	97.91	97.91	98.17	95.07	98.24
5	98.08	99.50	94.20	97.93	98.82	99.09	98.36	96.84
6	93.04	98.02	93.80	99.65	97.74	90.81	96.25	98.40
7	94.74	98.55	96.89	96.67	95.97	92.31	94.20	97.61
8	94.41	96.59	98.73	96.33	99.65	90.48	94.39	97.61
9	95.76	97.66	97.27	96.84	99.13	90.15	94.56	97.93
10	97.39	93.16	93.18	96.82	98.65	98.91	98.00	96.82
11	96.94	98.55	97.07	94.40	96.67	93.16	93.69	96.35
12	97.28	98.73	98.91	94.75	96.32	92.14	92.84	95.72
13	98.82	97.66	99.64	91.42	96.32	89.48	92.33	95.09
14	98.14	98.73	94.70	91.60	94.75	90.81	93.86	96.19
15	96.15	92.66	92.84	95.88	95.76	98.73	97.27	96.67
16	94.07	97.48	98.36	90.38	96.67	91.98	93.86	96.35
17	93.54	96.41	96.70	91.07	99.48	89.15	94.73	96.19
18	92.36	94.61	98.55	97.74	96.48	91.98	92.50	95.88
19	95.42	95.52	100.00	98.43	95.74	91.14	91.83	96.98
20	95.80	92.31	92.67	95.24	95.25	97.30	96.89	96.49
21	94.07	97.13	94.34	97.39	95.97	90.48	92.84	94.91
22	95.76	98.91	99.09	96.67	93.36	91.14	93.01	93.80
23	95.59	99.09	91.77	97.39	95.27	91.14	91.99	95.56
24	97.28	98.73	98.36	97.04	94.93	92.47	91.66	93.65
25	95.21	90.81	92.33	94.44	95.25	96.24	96.52	94.75
26	97.28	97.30	98.73	95.36	95.43	91.81	93.52	96.03
27	95.93	96.77	95.98	96.15	94.21	91.64	92.67	98.09
28	96.43	96.06	97.64	95.42	94.04	92.47	92.16	97.45
29	97.11	98.55	96.16	97.74	94.91	92.66	92.33	96.19
30	94.21	88.63	91.66	90.77	92.87	94.79	96.34	91.42

Key: min = minute, **Rt.** = right, **Lt.** = left

Table E.15 Normalized median frequency (%) of subject no. 13 of lumbar multifidus (LM) and internal oblique (IO) muscles in crossed sitting and heel sitting posture

Time (min)/Muscles	Normalized median frequency (%)							
	Crossed sitting posture				Heel sitting posture			
	Rt. LM	Lt. LM	Rt. IO	Lt. IO	Rt. LM	Lt. LM	Rt. IO	Lt. IO
1	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
2	94.37	98.12	96.54	96.01	96.24	95.61	98.44	93.80
3	93.99	99.06	97.29	98.68	97.30	99.27	95.86	93.80
4	97.00	94.53	96.18	95.25	96.95	95.06	96.55	94.42
5	98.73	94.51	98.26	97.67	98.11	96.06	96.75	99.05
6	99.63	97.56	99.64	94.30	97.48	84.79	95.52	94.88
7	100.00	91.32	97.65	97.73	97.30	89.75	96.89	96.90
8	92.13	95.10	98.73	95.82	94.97	89.03	96.04	95.81
9	95.88	94.16	88.00	95.25	92.83	96.52	94.64	94.88
10	94.43	93.97	96.89	95.91	94.24	94.00	95.28	96.01
11	92.50	92.66	97.47	96.38	94.61	97.45	97.06	93.03
12	94.75	94.53	96.36	96.38	96.95	96.52	97.06	97.67
13	93.06	93.03	99.46	95.25	98.37	99.27	97.24	99.52
14	92.88	92.28	98.01	93.55	98.37	98.36	95.86	97.83
15	93.54	93.97	96.55	95.04	92.50	93.41	95.09	92.98
16	93.81	93.41	95.82	89.74	89.60	98.00	96.55	97.36
17	93.99	93.60	97.11	93.55	85.48	90.66	99.83	95.65
18	92.83	92.66	95.46	95.06	87.64	90.85	99.66	93.50
19	93.06	95.47	99.10	91.07	93.72	88.82	98.78	91.63
20	88.35	91.39	95.86	94.88	91.39	93.00	92.36	92.01
21	90.62	93.41	89.47	92.79	94.94	86.82	96.89	83.59
22	91.76	94.25	90.73	89.93	96.77	90.48	92.93	89.15
23	90.43	92.00	90.55	92.79	93.90	89.03	99.83	91.72
24	93.99	93.41	91.09	89.36	88.88	89.03	91.19	91.72
25	87.64	89.81	95.16	93.12	91.20	90.95	90.91	92.01
26	91.20	93.41	90.01	90.31	88.71	89.06	92.58	92.04
27	91.76	90.94	88.74	90.31	95.14	89.81	88.79	95.10
28	97.93	83.41	90.73	93.93	93.54	89.45	95.86	94.53
29	90.81	84.72	88.18	92.01	86.19	89.30	95.52	95.76
30	85.12	89.03	91.36	90.40	89.69	83.03	88.38	88.23

Key: min = minute, **Rt.** = right, **Lt.** = left

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Table E.16 Normalized median frequency (%) of subject no. 14 of lumbar multifidus (LM) and internal oblique (IO) muscles in crossed sitting and heel sitting posture

Time (min)/Muscles	Normalized median frequency (%)							
	Crossed sitting posture				Heel sitting posture			
	Rt. LM	Lt. LM	Rt. IO	Lt. IO	Rt. LM	Lt. LM	Rt. IO	Lt. IO
1	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
2	97.98	96.06	94.32	98.37	97.61	94.05	99.29	96.36
3	98.65	96.41	96.19	96.93	97.27	98.19	91.48	96.54
4	99.33	95.70	94.66	97.83	98.12	98.55	85.07	94.91
5	99.66	99.82	95.21	97.29	99.66	98.37	97.51	99.62
6	96.45	95.70	97.01	99.82	98.98	98.90	93.77	98.73
7	99.33	96.24	95.49	98.37	97.61	97.65	96.09	96.54
8	99.16	97.30	92.66	98.19	98.64	99.82	86.86	92.56
9	97.12	96.24	91.31	98.54	98.12	99.44	87.22	95.46
10	99.15	99.64	93.24	93.65	98.15	97.66	96.05	99.44
11	97.98	97.66	98.00	96.22	99.49	98.73	90.95	96.36
12	98.65	95.14	96.67	99.62	97.78	99.08	94.86	96.75
13	97.12	96.95	95.49	98.54	98.31	96.76	94.50	92.92
14	98.49	97.30	91.48	99.08	98.98	99.64	87.75	93.47
15	98.81	98.90	92.71	93.11	97.81	96.59	95.32	98.54
16	98.49	97.48	95.82	99.62	97.61	98.37	89.16	94.01
17	97.98	96.59	96.51	98.19	97.95	96.76	86.86	94.01
18	96.45	94.61	96.67	98.72	96.93	98.90	91.83	95.28
19	96.62	99.64	96.15	97.65	99.66	97.83	91.12	97.83
20	98.81	98.90	92.18	92.74	97.45	96.06	94.32	96.22
21	97.12	95.70	98.00	99.82	97.78	98.19	93.42	92.92
22	97.98	95.34	95.99	98.37	98.81	98.19	87.39	95.28
23	99.16	95.70	96.67	96.39	96.59	97.83	87.57	91.46
24	98.65	95.34	95.16	92.61	98.31	98.37	87.39	93.29
25	97.95	97.83	88.63	90.19	96.78	96.06	93.99	95.86
26	97.45	96.06	86.96	95.48	97.61	94.77	93.95	93.29
27	97.81	98.02	94.62	96.04	98.98	94.95	95.74	97.11
28	95.94	96.06	94.62	98.72	96.76	96.76	90.59	91.64
29	97.98	93.90	94.62	96.04	96.93	98.55	86.33	90.55
30	97.44	97.34	87.22	89.29	95.94	95.88	85.30	95.66

Key: min = minute, **Rt.** = right, **Lt.** = left

Table E.17 Normalized median frequency (%) of subject no. 15 of lumbar multifidus (LM) and internal oblique (IO) muscles in crossed sitting and heel sitting posture

Time (min)/Muscles	Normalized median frequency (%)							
	Crossed sitting posture				Heel sitting posture			
	Rt. LM	Lt. LM	Rt. IO	Lt. IO	Rt. LM	Lt. LM	Rt. IO	Lt. IO
1	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
2	97.39	97.34	95.16	96.37	98.19	97.63	90.90	83.02
3	98.08	98.24	91.66	94.57	98.91	95.23	92.96	81.01
4	96.70	97.89	96.12	97.17	98.55	98.72	84.56	80.01
5	98.34	98.72	98.61	99.25	96.36	99.30	98.65	99.60
6	95.82	98.24	98.24	99.60	89.81	97.99	80.62	88.54
7	98.43	98.07	93.78	96.97	89.20	96.33	79.94	80.67
8	98.43	99.30	94.19	94.77	91.08	91.74	79.06	79.34
9	97.91	98.24	94.97	97.57	97.64	96.33	80.96	80.34
10	98.19	97.42	92.62	97.42	96.36	99.12	95.35	96.17
11	98.08	97.89	98.24	95.17	95.27	88.98	82.15	96.92
12	97.57	97.69	93.21	94.37	95.09	91.01	87.65	96.40
13	97.57	98.07	99.04	93.37	90.35	96.15	90.55	95.74
14	97.91	97.52	99.23	96.57	91.98	95.96	92.28	92.74
15	95.81	96.88	84.39	84.86	96.01	98.95	94.77	95.37
16	95.30	99.47	95.74	94.77	87.25	98.91	93.99	95.07
17	95.65	97.89	94.39	94.97	95.63	97.06	91.60	95.24
18	97.22	97.69	94.77	95.57	90.72	94.32	93.99	95.57
19	94.79	97.69	93.01	93.97	93.82	96.70	88.35	92.40
20	95.63	95.96	80.30	81.69	95.48	98.77	93.98	95.17
21	97.91	97.69	99.42	96.57	89.27	96.51	98.44	88.00
22	98.08	99.30	94.19	96.57	94.18	97.42	99.15	83.69
23	95.82	98.42	94.00	93.37	90.17	96.33	89.53	87.71
24	98.94	98.07	96.70	95.17	94.18	98.54	86.10	81.86
25	91.90	95.05	81.13	81.36	95.48	97.17	93.78	94.97
26	94.55	97.17	91.25	96.77	95.09	89.74	79.94	78.34
27	97.57	95.69	96.51	95.77	90.72	89.37	79.59	78.34
28	96.53	94.82	95.74	96.97	99.09	91.20	80.30	80.84
29	95.13	96.64	93.21	96.57	90.31	89.92	80.30	80.51
30	90.53	94.87	79.40	78.51	95.30	94.30	93.40	94.37

Key: min = minute, **Rt.** = right, **Lt.** = left

Table E.18 Normalized median frequency (%) of subject no. 16 of lumbar multifidus (LM) and internal oblique (IO) muscles in crossed sitting and heel sitting posture

Time (min)/Muscles	Normalized median frequency (%)							
	Crossed sitting posture				Heel sitting posture			
	Rt. LM	Lt. LM	Rt. IO	Lt. IO	Rt. LM	Lt. LM	Rt. IO	Lt. IO
1	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
2	92.39	98.78	95.86	92.56	97.91	93.83	92.14	98.16
3	97.23	98.10	96.76	89.02	97.38	95.72	90.64	96.35
4	95.66	97.24	96.76	90.10	95.97	95.72	91.14	95.33
5	98.95	97.42	92.31	99.20	97.40	98.95	98.73	95.40
6	94.28	98.78	89.92	93.09	99.30	97.59	95.65	99.50
7	97.57	98.44	99.44	95.40	98.60	96.06	90.31	93.35
8	96.02	98.95	97.47	90.12	99.13	97.42	94.99	94.34
9	93.76	98.95	98.55	85.48	98.95	97.42	91.64	93.19
10	98.78	94.51	91.98	98.66	96.71	98.27	98.19	92.56
11	94.80	98.27	96.22	93.80	98.95	95.55	91.14	94.84
12	95.66	96.90	95.86	92.74	98.95	94.68	91.64	95.50
13	96.37	97.41	98.90	95.40	99.83	94.68	87.46	96.51
14	95.48	96.38	97.47	95.23	99.65	96.74	94.66	96.68
15	97.91	94.51	91.98	95.86	95.66	97.58	97.83	89.90
16	93.42	96.90	95.86	92.21	98.95	95.89	83.95	98.37
17	95.14	95.36	97.29	93.09	97.38	95.38	91.14	99.53
18	94.62	96.31	97.65	93.62	96.66	96.06	89.31	99.20
19	96.71	97.80	89.38	87.97	97.38	93.49	93.33	93.02
20	96.84	92.29	91.48	95.00	95.25	97.41	97.12	89.55
21	94.80	96.56	96.58	87.44	98.78	96.29	89.31	89.20
22	96.02	96.56	98.19	91.86	98.78	95.10	89.48	99.86
23	94.11	97.07	95.31	87.61	99.30	93.57	91.98	90.69
24	93.59	97.07	96.04	86.73	97.56	90.74	91.48	91.51
25	95.78	95.27	90.98	94.84	94.28	97.24	96.58	88.67
26	94.62	97.24	89.56	92.74	97.73	92.12	89.31	93.05
27	93.98	98.27	87.95	87.44	95.31	96.89	91.14	90.36
28	94.62	97.24	95.48	89.37	95.26	96.91	91.64	98.02
29	94.45	99.32	93.70	88.67	95.43	93.40	91.14	96.04
30	94.92	95.53	89.48	91.35	93.42	97.07	86.85	86.73

Key: min = minute, **Rt.** = right, **Lt.** = left

Table E.19 Normalized median frequency (%) of subject no. 17 of lumbar multifidus (LM) and internal oblique (IO) muscles in crossed sitting and heel sitting posture

Time (min)/Muscles	Normalized median frequency (%)							
	Crossed sitting posture				Heel sitting posture			
	Rt. LM	Lt. LM	Rt. IO	Lt. IO	Rt. LM	Lt. LM	Rt. IO	Lt. IO
1	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
2	99.42	98.98	98.74	95.55	97.43	97.87	90.74	95.55
3	98.44	99.54	95.47	94.97	97.77	95.58	90.42	94.87
4	98.78	96.84	94.39	95.36	99.32	97.87	91.55	97.77
5	98.98	98.42	99.19	99.15	99.83	98.62	95.29	97.86
6	99.32	98.45	92.03	96.51	98.64	97.51	95.29	96.06
7	98.27	97.91	90.41	99.42	96.76	98.77	95.61	98.28
8	99.83	97.55	90.59	96.71	97.26	96.63	95.94	98.11
9	97.58	97.91	93.85	95.36	96.59	93.44	99.03	98.45
10	98.64	98.06	96.58	98.28	98.95	98.45	95.29	97.48
11	98.95	98.98	90.23	96.90	95.91	98.59	93.17	95.38
12	98.44	98.62	90.05	94.97	95.91	97.16	94.97	98.45
13	98.95	97.91	90.05	98.46	99.15	99.82	95.78	99.83
14	100.00	98.98	93.85	98.24	96.92	99.47	97.57	97.94
15	98.64	97.51	95.78	97.25	98.78	98.27	89.86	96.32
16	99.49	98.98	91.67	92.83	96.92	98.59	98.71	97.94
17	98.27	98.27	95.47	97.28	98.28	92.21	98.38	98.45
18	97.07	98.27	93.13	95.17	96.92	96.63	97.90	97.42
19	98.27	99.36	89.68	94.21	97.43	96.28	98.87	98.61
20	97.77	97.16	94.80	96.74	97.75	97.73	88.96	95.36
21	98.44	99.16	96.76	94.59	97.09	97.87	89.27	97.42
22	98.61	97.91	88.78	94.97	94.89	98.06	91.23	97.08
23	99.49	99.54	90.59	99.42	97.26	96.81	91.07	96.39
24	97.58	99.54	94.39	94.59	96.42	99.82	94.97	97.59
25	97.43	97.16	98.32	96.23	97.41	97.38	88.96	94.78
26	98.27	97.55	94.21	97.28	97.60	94.70	92.10	98.11
27	98.61	99.54	93.32	95.17	97.09	97.87	95.45	95.82
28	98.95	98.83	94.42	95.17	96.59	97.34	93.90	95.55
29	96.90	93.79	94.86	94.97	95.91	98.42	93.78	95.27
30	96.25	96.11	91.87	91.51	97.41	96.48	86.24	92.26

Key: min = minute, **Rt.** = right, **Lt.** = left

Table E.20 Normalized median frequency (%) of subject no. 18 of lumbar multifidus (LM) and internal oblique (IO) muscles in crossed sitting and heel sitting posture

Time (min)/Muscles	Normalized median frequency (%)							
	Crossed sitting posture				Heel sitting posture			
	Rt. LM	Lt. LM	Rt. IO	Lt. IO	Rt. LM	Lt. LM	Rt. IO	Lt. IO
1	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
2	98.60	98.42	99.42	97.24	96.76	97.40	92.22	96.15
3	97.01	98.95	99.42	98.27	95.14	96.54	92.70	96.83
4	96.84	99.47	96.69	99.48	95.51	98.78	92.96	96.15
5	98.37	97.40	100.00	92.82	97.91	100.00	97.47	96.98
6	99.13	98.59	97.66	89.25	99.82	97.57	92.40	82.09
7	97.56	100.00	98.04	94.97	96.94	96.72	90.01	80.90
8	97.21	99.12	100.00	91.15	96.94	97.75	92.77	81.59
9	97.01	97.52	98.04	86.64	96.94	97.92	90.75	85.09
10	96.59	97.40	92.51	91.76	97.01	99.47	97.08	95.79
11	99.48	98.42	95.92	84.74	94.06	96.89	93.51	90.80
12	94.56	99.30	99.61	85.95	92.46	97.57	92.51	87.28
13	97.01	99.12	97.85	84.57	95.14	97.23	92.39	85.61
14	96.66	97.34	97.27	92.47	93.53	97.57	94.64	81.59
15	94.78	97.40	91.85	90.29	97.01	99.12	96.69	92.99
16	95.79	99.65	94.16	92.82	92.46	96.89	92.70	85.28
17	95.27	98.24	94.38	84.74	92.46	96.37	92.40	84.59
18	94.39	99.30	95.73	87.33	93.17	97.40	92.96	82.26
19	97.01	97.69	94.38	88.91	92.28	98.43	91.67	83.09
20	94.78	96.54	91.67	85.28	96.49	98.95	93.97	92.90
21	95.62	96.29	95.15	88.19	92.64	97.92	90.56	80.57
22	97.01	97.89	99.42	83.68	93.53	95.49	90.56	91.07
23	98.08	96.64	94.16	91.84	95.14	97.57	90.56	87.94
24	98.08	98.59	94.96	86.12	96.05	97.06	90.93	94.42
25	94.42	96.20	90.19	83.09	95.79	98.59	93.77	86.47
26	96.31	98.07	93.97	89.34	94.60	97.23	91.11	95.28
27	95.97	96.82	95.53	89.51	95.31	94.09	92.59	92.42
28	94.92	98.07	92.23	92.47	97.48	96.20	95.74	91.92
29	95.09	97.52	94.38	96.64	96.59	94.23	92.59	91.42
30	92.64	94.95	89.43	78.57	95.27	97.17	91.84	84.39

Key: min = minute, **Rt.** = right, **Lt.** = left

Table E.21 Normalized median frequency (%) of subject no. 19 of lumbar multifidus (LM) and internal oblique (IO) muscles in crossed sitting and heel sitting posture

Time (min)/Muscles	Normalized median frequency (%)							
	Crossed sitting posture				Heel sitting posture			
	Rt. LM	Lt. LM	Rt. IO	Lt. IO	Rt. LM	Lt. LM	Rt. IO	Lt. IO
1	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
2	99.66	98.28	94.29	99.63	96.62	97.86	98.96	99.30
3	99.32	97.94	99.43	97.86	99.16	98.18	98.96	98.77
4	98.95	97.94	99.05	94.17	95.78	97.69	97.05	95.42
5	98.99	98.53	98.96	98.36	99.32	98.98	99.05	94.94
6	97.75	97.76	91.43	92.30	96.62	95.73	95.47	98.42
7	99.66	96.40	93.35	92.30	98.99	97.20	95.29	97.00
8	98.10	94.51	92.78	92.30	97.98	96.88	93.73	93.47
9	99.66	95.21	92.19	92.48	99.16	98.02	90.76	95.94
10	97.98	97.86	96.51	98.01	97.58	96.23	95.81	93.32
11	97.58	94.34	92.97	92.30	96.96	97.53	95.64	92.06
12	97.58	95.04	91.24	91.92	97.48	97.20	91.28	94.89
13	98.61	95.72	98.48	90.58	96.62	97.20	92.15	86.08
14	98.61	96.40	92.59	88.34	99.50	98.69	96.88	90.84
15	96.96	97.69	93.04	94.72	96.38	95.38	94.29	92.30
16	97.07	95.89	92.78	85.88	96.79	96.71	97.74	93.64
17	96.21	95.21	93.54	85.32	97.65	98.53	96.70	95.07
18	95.70	95.65	92.78	85.51	99.66	97.86	98.96	93.64
19	95.53	94.61	89.53	84.57	98.15	98.02	94.25	98.36
20	96.62	97.69	94.94	92.94	96.14	94.87	92.97	91.15
21	97.75	96.23	92.38	96.25	96.45	95.57	95.29	91.89
22	95.97	94.17	92.78	92.48	97.12	98.02	94.25	91.60
23	95.28	94.00	89.91	88.53	97.65	98.02	88.13	92.31
24	95.09	95.21	91.62	94.57	97.12	97.20	92.67	92.43
25	95.89	96.53	93.73	92.71	95.62	94.51	92.00	90.21
26	95.35	94.17	94.86	93.07	95.95	96.71	92.15	97.17
27	95.14	94.00	91.62	93.45	96.96	95.69	94.42	95.24
28	95.80	93.83	94.29	85.13	95.78	95.69	95.81	95.24
29	95.14	94.51	91.24	93.82	96.12	95.37	98.96	92.59
30	95.61	96.06	93.73	91.36	95.04	94.17	91.81	89.28

Key: min = minute, **Rt.** = right, **Lt.** = left

Table E.22 Normalized median frequency (%) of subject no. 20 of lumbar multifidus (LM) and internal oblique (IO) muscles in crossed sitting and heel sitting posture

Time (min)/Muscles	Normalized median frequency (%)							
	Crossed sitting posture				Heel sitting posture			
	Rt. LM	Lt. LM	Rt. IO	Lt. IO	Rt. LM	Lt. LM	Rt. IO	Lt. IO
1	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
2	98.07	96.19	97.24	98.20	92.43	91.51	87.37	99.64
3	95.41	97.30	94.80	94.44	95.69	98.72	89.54	98.73
4	96.99	98.20	97.24	98.20	95.31	90.60	94.22	99.10
5	97.29	93.53	96.39	99.42	99.65	94.39	99.31	98.02
6	97.69	92.77	97.58	97.31	91.17	90.60	94.58	98.19
7	97.52	94.57	97.24	96.42	96.40	92.61	98.72	88.56
8	98.95	96.19	98.27	97.49	95.86	92.43	97.83	94.73
9	97.89	92.77	99.83	97.31	92.44	90.96	93.86	96.00
10	97.29	94.84	94.94	98.19	98.24	94.21	99.14	98.02
11	96.64	95.47	98.62	97.67	92.09	93.72	92.97	98.55
12	95.59	92.77	97.93	98.02	94.05	96.67	94.22	96.36
13	97.69	92.41	97.01	97.49	93.34	89.86	87.01	97.47
14	98.24	92.59	97.93	98.02	93.87	92.80	89.36	97.29
15	96.04	92.80	94.58	97.83	98.24	93.85	98.96	97.31
16	97.89	93.31	97.42	96.95	93.70	92.61	88.82	96.18
17	98.42	94.39	98.27	97.49	92.44	90.96	92.79	95.46
18	97.52	92.59	97.93	97.13	95.13	90.60	95.66	95.09
19	98.24	94.39	98.96	95.17	96.04	93.35	89.72	89.83
20	93.34	91.88	94.40	97.47	97.17	93.67	97.93	97.13
21	98.07	92.23	98.27	99.29	96.22	92.98	89.36	90.01
22	97.89	92.41	96.01	99.29	89.92	94.47	88.29	91.46
23	96.46	92.59	96.72	98.02	92.44	92.61	95.86	90.73
24	98.24	95.29	97.58	97.49	92.62	89.29	90.80	88.38
25	92.26	91.70	89.18	94.73	95.76	92.59	97.42	96.60
26	93.45	92.95	95.88	97.13	89.74	92.94	95.12	97.11
27	93.28	93.49	93.93	94.26	90.99	91.88	92.61	98.55
28	95.59	94.39	94.28	92.48	89.92	90.41	93.86	98.92
29	94.18	92.95	96.89	92.48	94.05	90.31	89.72	99.10
30	89.92	89.68	89.00	94.55	92.05	92.23	97.41	94.08

Key: min = minute, **Rt.** = right, **Lt.** = left

Table E.23 Normalized median frequency (%) of subject no. 21 of lumbar multifidus (LM) and internal oblique (IO) muscles in crossed sitting and heel sitting posture

Time (min)/Muscles	Normalized median frequency (%)							
	Crossed sitting posture				Heel sitting posture			
	Rt. LM	Lt. LM	Rt. IO	Lt. IO	Rt. LM	Lt. LM	Rt. IO	Lt. IO
1	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
2	97.04	96.70	95.96	99.80	93.67	96.24	88.41	97.85
3	97.53	89.94	91.57	99.59	99.26	96.06	87.88	97.35
4	96.22	92.67	93.14	95.50	98.36	93.72	88.59	96.21
5	99.26	98.37	96.61	99.18	96.22	92.30	95.26	97.33
6	96.71	94.33	94.38	94.66	99.44	96.77	92.51	97.68
7	95.41	95.24	92.44	94.05	97.82	95.14	90.18	97.85
8	95.73	94.69	84.18	93.85	94.93	98.02	90.18	98.50
9	96.55	88.09	85.95	93.04	97.28	99.29	88.59	91.92
10	98.72	98.02	96.08	96.53	95.73	91.94	94.36	97.13
11	92.45	99.64	91.04	95.50	97.46	95.70	93.04	92.74
12	97.86	98.91	86.65	95.70	98.36	98.02	85.38	97.52
13	96.88	98.00	93.14	95.09	96.03	99.64	87.17	94.38
14	95.41	96.52	91.57	95.70	97.33	98.20	94.46	94.38
15	98.54	97.84	92.33	95.55	95.69	90.30	93.51	96.52
16	96.06	98.00	95.96	97.53	97.82	99.64	95.19	99.34
17	96.71	97.45	93.86	97.94	97.28	96.87	91.80	90.42
18	95.73	94.15	96.31	95.09	99.08	96.06	97.14	92.74
19	95.73	90.80	92.79	94.66	96.21	97.84	95.73	97.35
20	96.93	97.48	87.70	94.54	95.55	89.57	90.34	95.30
21	95.90	97.81	84.88	96.11	96.75	99.82	95.72	92.41
22	92.42	94.33	82.08	93.24	97.82	98.02	95.91	96.53
23	84.89	98.18	83.13	96.11	97.29	96.41	84.84	96.04
24	94.92	87.73	82.43	95.09	97.11	97.30	86.08	91.75
25	94.39	97.13	86.82	89.93	94.92	88.67	85.95	95.09
26	89.49	90.15	91.22	95.09	94.57	95.47	84.67	82.01
27	90.14	89.67	95.60	94.46	95.47	93.24	86.44	90.26
28	95.22	89.67	97.87	95.09	98.54	94.79	83.60	94.71
29	93.75	91.94	94.88	93.65	96.03	96.77	87.88	95.55
30	90.60	94.61	85.55	87.96	91.47	87.73	84.01	93.65

Key: min = minute, **Rt.** = right, **Lt.** = left

Table E.24 Normalized median frequency (%) of subject no. 22 of lumbar multifidus (LM) and internal oblique (IO) muscles in crossed sitting and heel sitting posture

Time (min)/Muscles	Normalized median frequency (%)							
	Crossed sitting posture				Heel sitting posture			
	Rt. LM	Lt. LM	Rt. IO	Lt. IO	Rt. LM	Lt. LM	Rt. IO	Lt. IO
1	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
2	99.28	98.91	97.04	99.03	90.95	91.55	98.72	96.08
3	99.46	96.88	98.18	98.07	87.14	90.59	98.88	95.46
4	99.10	97.63	95.89	91.03	91.31	91.15	99.20	95.15
5	98.92	97.00	98.72	98.91	99.64	99.82	93.91	87.51
6	97.66	98.00	90.94	84.31	98.74	97.75	97.44	97.51
7	98.92	99.64	89.47	85.60	99.82	100.00	97.28	97.51
8	97.12	99.45	88.49	80.63	90.77	98.50	96.80	97.02
9	98.38	98.00	88.98	78.56	87.32	96.44	98.72	96.55
10	91.31	96.44	97.44	88.91	99.10	99.45	92.93	86.71
11	96.40	95.79	86.67	84.79	88.60	90.77	97.76	95.46
12	97.12	97.63	87.32	80.79	84.08	91.73	96.96	97.02
13	97.84	99.27	88.65	79.99	88.06	90.03	98.88	94.84
14	94.93	96.70	90.12	77.76	85.70	98.88	97.92	92.95
15	90.41	93.98	96.30	96.40	97.12	98.36	88.98	82.72
16	97.12	96.88	90.12	85.60	86.60	90.77	98.24	95.15
17	96.76	99.45	90.94	83.67	87.14	89.65	98.08	95.93
18	94.21	94.51	87.83	81.60	95.83	92.30	97.76	96.86
19	95.11	95.42	88.00	82.40	87.14	90.59	96.96	94.52
20	88.24	93.42	96.14	95.62	95.29	98.00	88.82	80.31
21	98.02	97.45	88.98	79.20	87.14	93.23	98.24	96.86
22	96.76	93.60	85.85	79.04	88.78	91.73	98.24	92.79
23	95.65	96.70	88.65	84.94	86.60	91.73	95.98	93.90
24	96.19	98.91	89.63	83.67	88.96	90.40	91.47	96.71
25	88.06	90.77	94.37	95.46	95.11	97.81	88.00	80.31
26	96.76	98.72	89.80	81.76	87.50	91.34	93.25	99.06
27	94.93	92.45	88.16	84.94	87.32	97.94	95.34	89.22
28	90.41	92.27	88.49	84.15	91.85	97.75	94.53	88.91
29	96.40	91.21	88.00	86.56	88.96	93.23	95.02	83.41
30	86.24	89.09	93.73	94.84	94.93	89.09	87.51	78.24

Key: min = minute, **Rt.** = right, **Lt.** = left

Table E.25 Normalized median frequency (%) of subject no. 23 of lumbar multifidus (LM) and internal oblique (IO) muscles in crossed sitting and heel sitting posture

Time (min)/Muscles	Normalized median frequency (%)							
	Crossed sitting posture				Heel sitting posture			
	Rt. LM	Lt. LM	Rt. IO	Lt. IO	Rt. LM	Lt. LM	Rt. IO	Lt. IO
1	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
2	94.84	99.44	98.06	95.39	99.83	98.27	94.36	98.93
3	92.69	97.93	97.51	98.24	99.65	98.27	96.12	94.86
4	98.38	96.26	97.34	99.82	98.09	97.23	97.43	94.86
5	98.78	96.17	99.20	96.16	97.34	99.44	93.27	96.63
6	97.67	97.93	94.87	92.20	96.87	99.48	98.71	97.80
7	93.40	96.82	95.75	93.96	96.67	97.75	98.39	97.64
8	93.57	92.15	88.67	93.78	99.83	95.47	98.71	97.45
9	93.04	99.23	92.39	92.55	98.09	95.99	98.88	96.80
10	98.61	95.99	97.64	96.16	95.37	97.56	91.68	95.22
11	95.01	100.00	96.46	93.61	97.74	97.23	98.23	94.70
12	93.40	97.19	93.62	95.57	98.96	96.88	96.12	98.45
13	99.82	97.00	89.72	96.63	99.48	96.71	97.43	96.32
14	99.29	95.14	91.16	92.37	98.96	95.82	91.93	97.29
15	96.67	94.95	96.12	95.18	94.11	96.45	91.68	95.22
16	93.40	97.93	91.16	89.00	99.48	97.23	92.41	96.80
17	90.74	94.19	91.86	88.30	99.13	95.13	95.96	96.48
18	91.80	90.85	89.37	92.73	96.50	96.34	96.60	98.12
19	92.51	92.96	92.56	92.73	99.30	96.53	99.52	95.67
20	96.48	94.43	94.52	94.86	92.87	96.07	89.37	94.51
21	94.64	99.44	87.61	92.73	97.74	98.44	91.12	95.35
22	92.87	95.70	95.75	86.53	96.67	95.99	99.17	95.83
23	99.29	97.19	94.87	89.18	96.87	98.27	96.76	94.86
24	93.57	97.00	86.91	89.00	98.78	95.99	90.16	95.18
25	95.98	93.91	92.06	94.05	92.69	94.75	88.84	94.34
26	93.04	97.56	87.44	94.34	98.61	94.23	95.26	94.37
27	93.75	96.26	92.56	93.78	98.78	96.17	97.41	95.35
28	93.40	94.56	92.04	92.20	95.65	96.53	94.33	93.06
29	92.51	94.01	93.62	95.04	92.61	94.78	93.01	95.02
30	92.87	93.74	87.89	90.63	92.16	90.45	87.96	87.24

Key: min = minute, **Rt.** = right, **Lt.** = left

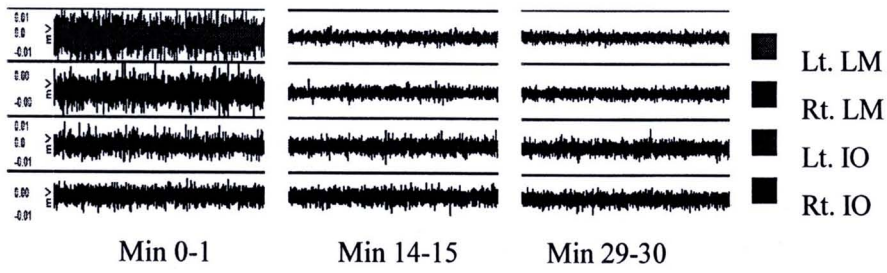

Figure E.1 Example of EMG signal of right lumbar multifidus (Rt. LM), left lumbar multifidus (Lt. LM), right internal oblique (Rt. IO) and left internal oblique (Lt. IO) during performed the crossed sitting posture of subject No.22

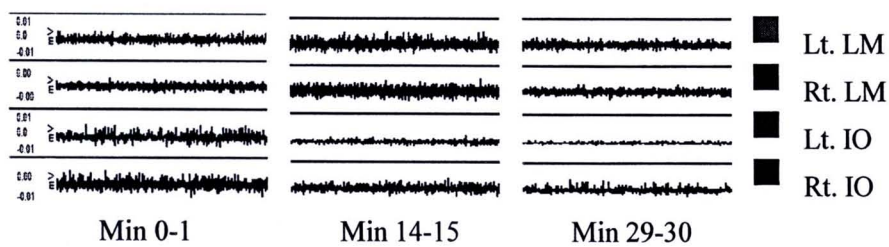

Figure E.2 Example of EMG signal of right lumbar multifidus (Rt. LM), left lumbar multifidus (Lt. LM), right internal oblique (Rt. IO) and left internal oblique (Lt. IO) during performed the heel sitting posture of subject No.22

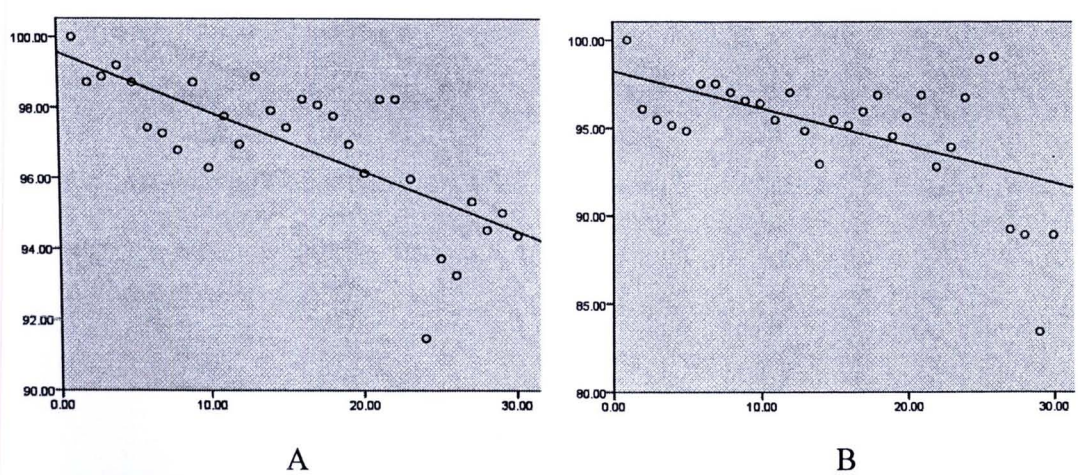

Figure E.3 Example of MF slope of right lumbar multifidus muscle during performed the crossed sitting (A) and the heel sitting posture (B) of subject No.22

RESEARCH PUBLICATIONS

Areeudomwong P, Siritaratiwat W, Puntumetakul R, Leelayuwat N. Reliability of sEMG measurement for lumbar multifidus muscle and internal oblique muscle during sub-maximal voluntary muscle contraction in Thai healthy participants. J Med Tech Phys Ther 2009; 21(1)(suppl): 39. งานประชุมวิชาการเนื่องในโอกาสการสถาปนาครบรอบ 30 ปีคณะเทคนิคการแพทย์ มหาวิทยาลัยขอนแก่น เรื่อง ความท้าทายของเทคนิคการแพทย์และกายภาพบำบัดในยุคแห่งการเปลี่ยนแปลง ณ โรงแรมพูลแมน ขอนแก่น ราชาออคิด วันที่ 16-18 มีนาคม พ.ศ. 2552

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