報　告　資　料

第 1 部

養護学校児童・生徒における

動的姿勢制御能からみた
歩行運動の足蹠6点着床・リズムパターンの発達

―昭和61・62年度道立H養護学校・動作リズム優先テンポ調査報告―

1988. 3

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北海道教育大学札幌分校・障害児教育研究室

SAPPORO, JAPAN

QUELQUES MOUVEMENTS RYTHMIQUES (PHASE DEVELOPPEMENTALLE)

C.N	NOM	SEX	ÂGE	MARCH COMME CANARD PHASE	MARCH COMME CANARD PAS (TEPO)	MARCH EN SAUTILLANT PHASE	MARCH EN SAUTILLANT PAS (TEMPO)	SAUTILLEMENT SUR UNE JAMBE DROIT FOIS (TEMPO)	SAUTILLEMENT SUR UNE JAMBE GAUCHE FOIS (TEMPO)
1.	H.NO	m	15:06	4'	3 (58.252)	2"	7 (76.923)	24 (127.660)	
2.	T.TA	f	15:04	2		2"		20 (145.594)	
3.	M.HO	f	15:03	3"	14 (38.961)	2"	7 (109.091)	0	(8/141.892)
4.	S.KU	m	15:02	3		2		17 (133.891)	
5.	T.SH	m	14:11	5	13 (100.139)	3	3 (56.338)	20 (123.510)	
6.	T.IS	m	14:11	0		1		0	0
7.	S.KI	m	14:11	5'	8 (92.511)	4	28 (78.412)	97 (118.251)	
8.	M.SU	m	14:04	6'	20 (100.000)	5	35 (91.975)	100 (132.589)	105 (140.036)
9.	Y.KI	m	14:02	5'	30 (82.778)	3	7 (56.426)	37 (127.434)	
10.	M.NA	m	14:01	4	7 (75.314)	3	6 (97.087)	16 (127.660)	8 (146.853)
11.	K.TA	f	13:10	3		2		8 (143.345)	
12.	S.SU	m	13:09	2'		2		0	0
13.	K.YA	m	13:08	5	(20/ 80.225)	3	5 (64.171)	18 (138.211)	13 (144.289)
14.	K.IS	m	13:06	6'	24 (98.011)	4'	47 (101.173)	28 (169.811)	50 (160.131)
15.	Y.MI	f	13:04	0					
16.	Y.OW	m	13:03	4	11 (58.423)	3'	3 (49.180)	11 (123.711)	9 (137.931)
17.	J.KA	m	13:02	3	4 (70.039)	2		1	1
18.	K.SA	m	13:02	5	22 (81.978)	3	10 (109.312)	25 (158.940)	29 (163.902)
19.	N.NA	m	12:11	1					
20.	Ta.M	m	12:08	4	9 (58.252)	3	8 (105.263)	3 (106.195)	5 (133.333)
21.	Ya.A	m	12:06	5	26 (85.082)	3	5 (65.217)	38 (165.919)	31 (153.684)
22.	Y.KA	m	12:04	1"				0	0
23.	Ma.S	m	12:01	4	9 (58.252)	2	(6/119.048)	13 (153.191)	13 (154.506)
24.	Y.SU	m	11:09	3	(6/ 55.556)	2		0	0
25.	M.OK	f	11:06	4	12 (60.998)	3'	(3/ 64.171)	1	3 (72.289)
26.	A.MU	m	11:05	1				1	
27.	Se.G	m	11:04	4	9 (84.507)	2'		0	0
28.	K.KA	m	11:03	5'	17 (68.966)	3	3 (63.830)	4 (178.218)	16 (162.455)
29.	A.YO	m	11:00	3	6 (55.866)	2"	(6/ 75.567)	2 (122.449)	0
30.	M.KU	f	10:10	-		-			
31.	M.SU	m	10:07	1		-		0	0
32.	M.KA	f	10:07	2		2		0	0
33.	Y.FU	f	10:06	-		-			
34.	S.UC	m	10:05	5'	16 (63.380)	4'	28 (77.586)	11 (168.539)	3 (125.000)
35.	T.SA	f	10:01	1		1		0	0

QUELQUES MOUVEMENTS RYTHMIQUES (PHASE DEVELOPPEMENTALLE)

C.N	NOM	SEX	ÂGE	MARCH COMME CANARD		MARCH EN SAUTILLANT		SAUTILLEMENT SUR UNE JAMBE	
								DROIT	GAUCHE
				PHASE	PAS (TEPO)	PHASE	PAS (TEMPO)	FOIS (TEMPO)	FOIS (TEMPO)
36.	Y.SU	m	10:00	5	17 (95.713)	4	33 (99.637)	36 (155.556)	7 (134.831)
37.	T.MI	f	9:11	4″	13 (99.448)	2		18 (156.202)	20 (152.610)
38.	D.KA	m	9:10	–		–			
39.	Y.JI	m	9:08	2″	(8/ 48.276)	1		0	0
40.	H.TA	m	9:08	3		2	(4/ 17.613)	0	0
41.	T.TA	m	9:06	4'	6 (72.816)	2	(10/121.076)	0	0
42.	K.SU	m	9:06	1		1			
43.	Ma.Y	m	9:05	4'	7 (77.253)	2	(3/ 91.603)	1	0
44.	T.EG	f	8:10	3'	(7/ 47.809)	1		0	0
45.	T.EG	m	8:10	1		1		0	0
46.	Mi.S	f	8:08	4	11 (62.305)	2	(8/ 95.238)	6 (169.492)	48 (167.658)
47.	Ta.I	m	8:08	2	5 (48.880)	1″		0	0
48.	M.KO	m	8:06	1		1		0	0
49.	Ta.S	m	8:06	4'	10 (82.695)	2″	(6/ 95.238)	2 (103.448)	0
50.	S.HO	f	8:06	–		–			
51.	K.OK	f	8:04	2	(4/ 73.469)	1		0	0
52.	N.TA	f	8:08	2″	(5/ 50.209)	2	(10/108.000)	0	0
53.	Mas.	m	8:02	3	6 (77.320)	2	(9/ 97.363)	2 (117.647)	3 (106.195)
54.	K.MA	f	8:01	3″	10 (102.467)	2	(7/107.143)	1	0
55.	Y.IB	m	8:00	0		1		0	0
56.	N.MI	m	8:00	4'	13 (47.809)	3'	(2/ 44.776)	1	1
57.	Y.HA	m	8:00	0		0			
58.	M.FU	m	7:08	4'	13 (69.164)	2	(5/123.077)	0	0
59.	A.IS	m	7:07	5'	18 (78.341)	3	11 (94.192)	22 (147.714)	12 (151.367)
60.	R.KA	m	7:06	0		1		0	0
61.	T.SA	m	7:06	1″	(7/ 43.217)	1		0	0
62.	M.HA	m	7:04	1		1		0	0
63.	Ky.W	m	7:01	1		1		0	0
64.	S.MI	m	7:00	1″		2	(7/129.032)	0	0
65.	Ai.K	f	7:00	1		1		0	0
66.	Yu.I	m	7:00	1″		1		0	0
67.	A.SU	m	6:11	2'	(4/ 42.254)	2	(7/121.622)	0	0
68.	W.SA	m	6:11	0		1		0	0
69.	E.TO	f	6:08	–		–			
70.	H.KA	m	6:07	3″	4 (107.143)	1″		0	0

TEMPOS DE SAUTILLEMENT SUR DEUX JAMBES

C.N NOM	LA PLUS			PRÉFÉRÉ	TROP RAPID	TROP LENT	SYNCHRONISATION		à 2 TEMPS
					(A)	(B)	♩ = 115	♩ = 140	
	PHASE	FOIS	A-B	FOIS(TEMPO)	FOIS(TEMPO)	FOIS(TEMPO)	FOIS(TEMPO)	FOIS(TEMPO)	FOIS(TEMPO)
1. H.NO	E	1		1(96.000)			0(192.857)		
2. T.TA	D	32	31.387	32(108.209)	13(130.152)	15(98.765)	23(118.285)		
3. M.HO	D	45	6.238	19(133.858)	24(136.957)	17(130.719)	45(130.293)		
4. S.KU	E	1		0(196.721)			1(173.913)		
5. T.SH	B	40	8.774	39(135.892)	33(144.636)	29(137.566)	40(137.615)	9(121.212)	
6. T.IS	G	0							
7. S.KI	C	35	-9.835	33(110.667)	23(112.888)	28(120.502)	35(119.307)	25(107.063)	
8. M.SU	B	34	69.279	30(102.733)	22(153.846)	23(84.567)	34(108.011)	30(93.802)	
9. Y.KI	C	48	5.753	26(112.469)	23(114.395)	13(108.642)	48(126.493)	31(113.783)	
10. M.NA	D	12	31.283	12(126.612)	9(120.172)	17(88.889)	11(111.758)		
11. K.TA	E	12	25.380	12(103.846)	12(124.281)	1(98.901)	0(105.395)		
12. S.SU	F	20		20(172.662)					3(166.763)
13. K.YA	C	34	26.956	34(166.259)	33(158.147)	28(139.303)	25(176.471)		
14. K.IS	B	47	37.980	31(115.305)	47(147.513)	29(109.533)	35(115.281)	15(113.636)	
15. Y.MI	-	-							
16. Y.OW	C	24	16.707	24(115.284)	11(131.148)	24(114.441)	23(122.264)	12(112.150)	
17. J.KA	E	8		8(147.368)				7(149.533)	
18. K.SA	C	39	51.172	22(124.183)	39(175.355)	24(134.756)	39(135.517)	3(101.266)	
19. N.NA	G	0							
20. Ta.M	C	40	41.302	32(119.166)	34(160.468)	33(129.450)	40(123.077)	20(121.596)	
21. Ya.A	B	44	60.995	44(140.011)	44(170.656)	31(109.661)	37(124.567)	33(110.727)	
22. Y.KA	F	8		6(186.770)					8(168.000)
23. Ma.S	D	16	19.478	16(149.201)	8(158.474)	15(138.996)	7(136.830)		9(149.853)
24. Y.SU	D	20	3.104	20(123.711)	16(121.916)	8(118.812)	10(123.167)		
25. M.OK	D	27	37.706	27(142.082)	23(169.241)	16(109.091)	23(131.535)		12(110.193)
26. A.MU	F	0		0(151.899)					
27. Se.G	C	45	21.419	45(157.303)	13(149.533)	20(128.114)	19(126.067)		
28. K.KA	D	15	-0.190	8(155.396)	0(150.943)	12(151.133)	15(130.564)		
29. A.YO	D	31	-7.983	31(185.280)	11(175.824)	10(183.807)	27(158.416)		
30. M.KU	-	-							
31. M.SU	F	1							1(145.786)
32. M.KA	D	14	-0.471	10(127.660)	6(129.964)	5(130.435)	14(127.490)		0(132.353)
33. Y.FU	-	-							
34. S.UC	B	31	91.264	26(119.772)	31(211.037)	15(125.545)	28(130.393)	20(124.163)	
35. T.SA	G	0							

TEMPOS DE SAUTILLEMENT SUR DEUX JAMBES

C.N NOM	LA PLUS PHASE	LA PLUS FOIS	LA PLUS A-B	PRÉFÉRÉ FOIS(TEMPO)	TROP RAPID FOIS(TEMPO)	TROP LENT FOIS(TEMPO)	SYNCHRONISATION ♩= 115 FOIS(TEMPO)	SYNCHRONISATION ♩= 140 FOIS(TEMPO)	à 2 TEMPS FOIS(TEMPO)
36. Y.SU	C	44	109.90	44(159.688)	37(214.286)	26(104.386)	31(154.696)		
37. T.MI	D	32	28.772	18(98.956)	19(127.728)	11(126.074)	25(109.025)	32()	
38. D.KA	-	-							
39. Y.JI	F	1	-3.889	5(153.355)	8(149.466)		7(142.292)		2(150.470)
40. H.TA	F	1		0(123.711)					1(148.148)
41. T.TA	E	13		9(168.153)					13(174.000)
42. K.SU	G	0							
43. Ma.Y	F	1		1(91.603)					0(85.106)
44. T.EG	G	0							
45. T.EG	F	7		3(172.662)			7(171.021)		
46. Mi.S	C	26	63.993	26(145.113)	8(189.952)	26(125.959)	24(130.265)		
47. Ta.I	E	10	67.605	5(106.195)	9(167.053)	10(99.448)			9(135.484)
48. M.KO	F	0		0(123.839)					
49. Ta.S	D	38	27.893	38(134.595)	31(155.196)	22(127.303)	36(119.940)	16(96.343)	
50. S.HO	-	-							
51. K.OK	G	0							
52. N.TA	E	4		4(129.032)					2(96.386)
53. Mas.	E	6		5(157.895)			6(108.108)		4(114.833)
54. K.MA	E	16		16(193.966)					
55. Y.IB	G	0							
56. N.MI	C	44	17.470	23(165.746)	21(171.946)	44(154.476)	23(155.575)	35(162.388)	
57. Y.HA	G	0							
58. M.FU	D	43	30.766	43(171.176)	9(179.439)	24(148.673)	22(136.536)		39(164.384)
59. A.IS	D	26	8.518	19(139.738)	19(148.256)	23(146.640)	26(148.026)		
60. R.KA	G	0							
61. T.SA	E	27	7.062	26(142.736)	14(141.176)	23(134.114)	23(136.467)		27(138.010)
62. M.HA	G	0							
63. Ky.W	G	0							
64. S.MI	E	8		8(122.449)					
65. Ai.K	G	0							
66. Yu.I	F	0		0(159.346)					0(154.639)
67. A.SU	F	2		2(160.000)					1(146.341)
68. W.SA	G	0							
69. E.TO	-	-							
70. H.KA	D	41	-4.778	37(171.089)	12(176.183)	34(180.961)	32(216.606)		41(171.429)

TEMPOS DE LA MARCHE

C.N NOM	Saut. sur 2 Jamb.	PHASE	A-B	PRÉFÉRÉ TEMPO	TROP RAPID (A) TEMPO	TROP LENT (B) TEMPO	SYNCHRONISATION ♩ = 148 TEMPO	TEMPS D'APPUI GAUCHE %/ CYCLE(SD)	DROIT %/ CYCLE(SD)
1. H.NO		E	27.450	98.596	129.375	101.925	119.950(-28.050)	57.148(3.044)	60.905(9.631)
2. T.TA		D	24.831	108.456	123.584	98.753	124.256(-23.744)	57.431(2.304)	53.262(12.592)
3. M.HO		D	34.051	125.589	148.591	114.540	129.915(-18.085)	55.718(5.314)	60.137(6.362)
4. S.KU		E		120.406			114.477(-33.523)	58.993(8.980)	68.400(22.300)
5. T.SH		B	13.487	83.583	96.386	82.899	101.644(-46.336)	61.406(4.719)	61.301(8.003)
6. T.IS		G		116.908					
7. S.KI		C	46.275	100.706	123.469	77.094	132.426(-15.574)	59.326(3.402)	56.605(1.882)
8. M.SU		B	35.152	121.151	137.314	102.162	140.185(- 7.815)	54.417(0.895)	59.132(1.189)
9. Y.KI		C	21.834	112.061	131.738	109.904	120.978(-27.022)	50.829(3.018)	51.444(2.322)
10. M.NA		D	39.342	108.742	151.989	112.647	128.004(-19.996)	55.196(3.614)	53.646(14.371)
11. K.TA		E	24.576	111.490	122.919	98.343	125.624(-22.376)	54.811(16.093)	50.485(8.834)
12. S.SU		F	12.357	79.356	100.605	88.248	108.554(-39.446)	55.756(10.780)	59.454(9.743)
13. K.YA		C	53.160	105.361	132.159	78.999	117.140(-30.860)	55.754(1.843)	58.811(2.521)
14. K.IS		B	67.090	111.724	166.451	99.361	138.047(- 9.953)	56.022(2.446)	58.130(2.278)
15. Y.MI		-		-					
16. Y.OW		C	35.907	126.354	134.781	98.876	119.581(-28.419)	57.822(2.515)	63.350(2.373)
17. J.KA		E	21.586	112.181	125.360	103.774	121.167(-28.833)		
18. K.SA		C	79.240	106.485	173.442	94.202	123.389(-24.611)	55.693(2.433)	55.454(3.871)
19. N.NA		G		run				48.029(10.867)	47.325(14.306)
20. Ta.M		C	43.232	103.838	128.315	85.083	130.733(-17.267)	59.064(3.567)	59.268(2.503)
21. Ya.A		B	83.020	121.231	188.211	105.191	145.157(- 2.843)	58.960(1.695)	55.626(4.105)
22. Y.KA		F	23.079	123.651	141.844	118.765	133.014(-14.986)		
23. Ma.S		D	4.154	125.602	131.167	127.013	134.228(-13.772)	59.996(5.119)	57.902(2.815)
24. Y.SU		D		107.065			134.174(-13.826)	56.862(7.067)	56.616(4.955)
25. M.OK		D	66.062	96.744	140.302	74.240	116.515(-31.485)	57.042(2.764)	58.425(2.834)
26. A.MU		F	24.632	125.050	98.509	100.418	110.396(-37.604)	56.657(22.905)	56.641(23.744)
27. Se.G		C	49.695	103.473	137.378	87.683	136.641(-11.359)	55.029(5.385)	51.337(9.050)
28. K.KA		D	4.302	121.827	117.266	117.525	121.858(-26.142)	55.720(3.243)	54.947(3.262)
29. A.YO		D	53.686	104.306	150.188	96.502	128.180(-19.820)	56.091(5.404)	49.820(12.382)
30. M.KU		-		-					
31. M.SU		F	27.508	118.110	142.495	114.987	164.992(+14.992)	49.796(12.245)	48.861(8.776)
32. M.KA		D		113.208					
33. Y.FU		-		-					
34. S.UC		B	75.776	129.383	179.748	103.972	147.783(- 0.217)	57.463(3.715)	58.099(3.204)
35. T.SA		G	16.991	115.397	130.502	113.511	138.468(- 9.532)	60.247(5.242)	58.484(4.337)

TEMPOS DE LA MARCHE

C.N NOM	Saut.sur 2 Jamb.	PHASE	A-B	PRÉFÉRÉ TEMPO	TROP RAPID (A) TEMPO	TROP LENT (B) TEMPO	SYNCHRONISATION ♩ = 148 TEMPO	TEMPS D'APPUI GAUCHE %/ CYCLE(SD)	DROIT %/ CYCLE(SD)
36. Y.SU		C	36.171	133.017	154.473	118.302	158.772(+10.772)	50.325(2.120)	51.948(1.779)
37. T.MI		D	52.215	113.828	146.092	93.877	124.883(-23.117)	46.674(13.232)	51.707(6.212)
38. D.KA		-		-					
39. Y.JI		F	70.671	127.158	170.774	100.103	154.136(+ 6.136)	55.446(5.240)	59.005(6.249)
40. H.TA		F	48.963	113.197	149.813	100.850	128.480(-19.520)	59.716(6.612)	53.486(6.779)
41. T.TA		E	67.302	120.174	158.019	90.717	144.986(- 3.011)	59.080(7.374)	59.492(7.480)
42. K.SU		G		141.251			133.767(-14.233)	55.202(9.360)	54.341(11.642)
43. Ma.Y		F	18.449	109.681	121.646	103.197	112.392(-35.608)		
44. T.EG		G	34.182	110.396	137.558	103.376	129.781(-18.219)	57.446(7.287)	56.768(4.889)
45. T.EG		F		107.710	135.173		107.467(-40.533)	52.509(6.862)	65.623(4.240)
46. Mi.S		C	48.084	128.978	160.302	112.218	152.321(+ 4.321)	54.376(4.208)	56.166(2.821)
47. Ta.I		E	15.914	110.911	120.901	104.987	144.031(- 3.969)	60.878(2.974)	57.032(3.630)
48. M.KO		F	25.615	140.322	172.840	147.225	214.310(run)	51.046(6.060)	50.220(6.931)
49. Ta.S		D	23.621	130.998	144.928	121.307	147.560(- 0.440)	56.021(8.175)	57.492(3.904)
50. S.HO		-		-				60.060(32.307)	67.597(29.997)
51. K.OK		G	59.785	117.851	177.115	117.330	148.432(+ 0.432)	56.133(6.255)	56.395(5.682)
52. N.TA		E	54.625	130.611	154.088	99.463	135.933(-12.067)	57.600(4.771)	55.367(5.591)
53. Mas.		E	42.527	119.669	134.178	91.651	131.465(-16.535)	54.889(4.696)	52.895(5.539)
54. K.MA		E	8.69	125.596	144.364	135.670	138.173(- 9.027)	63.678(13.111)	64.825(8.587)
55. Y.IB		G		119.852	run	118.876	148.084(+ 0.084)	55.736(12.687)	57.400(14.896)
56. N.MI		C	73.302	119.297	164.170	90.868	163.726(+15.726)	52.077(1.797)	54.209(1.899)
57. Y.HA		G		126.180			123.169(-24.831)	56.937(8.722)	55.313(10.660)
58. M.FU		D	76.538	118.117	174.609	98.071	149.347(+ 1.347)	54.804(1.763)	54.213(1.284)
59. A.IS		D	24.328	129.826	145.833	121.505	147.671(- 0.329)	55.082(4.201)	52.580(7.291)
60. R.KA		G	26.054	125.822	137.894	111.840	148.306(+ 0.306)	59.403(13.721)	56.196(12.358)
61. T.SA		E		209.7run			166.192(run)	33.467(3.928)	36.550(2.478)
62. M.HA		G	26.831	123.834	165.700	138.869	177.795(+29.795)	53.335(7.509)	55.291(9.474)
63. Ky.W		G		140.900			117.885(-30.115)	56.039(8.927)	54.200(8.065)
64. S.MI		E	36.825	122.398	155.383	118.558	120.751(-27.249)	59.280(2.668)	60.198(2.816)
65. Ai.K		G		131.100			155.409(+ 7.409)	60.634(8.296)	52.372(13.091)
66. Yu.I		F	50.731	137.031	173.894	123.163	102.542(-45.458)	52.490(9.662)	55.963(7.045)
67. A.SU		F	42.700	143.288	155.024	112.324	138.134(- 9.866)	60.295(5.400)	52.328(5.538)
68. W.SA		G		136.943			136.980(-11.020]	62.172(9.050)	64.760(11.937)
69. E.TO		-		-					
70. H.KA		D	44.977	138.324	176.276	131.299	158.201(+10.201)	52.536(4.684)	50.936(8.933)

TEMPS DU CYCLE DE MARCHE (% / CYCLE (SD))

C.N NOM	mmsec (SD%/cycle)	MANQUE DE TOUCHE (G:B-T,D:H-T)	APPUI	OSCILLATIONT	GAUCHE APPUI D'ORTIL —SCIL. DE BALLE	DROIT APPUI D'ENFER —APPUI DE BALLE
1. H.NO	1217.090(9.044)	11 0 0 0 0	18.054(3.016)	81.947(7.378)	5.661(-4.196 +2.663)	-0.269 8.142(-2.845 +9.877)
2. T.TA	1106.440(3.283)	16 0 0 0 0	14.444(3.766)	81.805(7.859)	3.072(-3.662 +2.374)	+0.248 4.898(-1.976 +3.663)
3. M.HO	955.500(8.303)	18 0 4 0 0	15.856(3.758)	84.144(6.700)	-3.450(-6.625 +11.262)	-4.647 11.379(-8.503 +9.522)
4. S.KU	996.625(13.356)	16 0 1 0 0	27.436(18.210)	72.520(18.213)	5.223(-9.365 +8.645)	+2.545 11.006(-8.503 +11.834)
5. T.SH	1435.700(19.918)	10 0 2 0 0	23.926(18.945)	74.856(37.342)	-2.924(-3.731 +4.016)	-8.078 5.314(-3.443 +12.869)
6. T.IS						
7. S.KI	1191.580(3.595)	12 0 0 0 0	15.931(1.139)	84.069(3.092)	-2.196(-3.906 +2.973)	-5.266 9.441(-3.010 +3.208)
8. M.SU	990.500(1.581)	10 0 0 0 0	13.549(0.824)	86.451(1.921)	13.468(-1.381 +3.407)	+15.275 14.679(-0.839 +4.833)
9. Y.KI	910.900(3.702)	10 0 5 0 0	3.491(2.738)	95.290(4.494)	0.901(-4.028 +2.934)	+3.074 6.071(-2.347 +3.942)
10. M.NA	1103.530(12.907)	19 0 0 0 3	11.919(4.628)	85.005(15.257)	-0.763(-3.783 +3.457)	-6.682 11.477(-3.454 +10.633)
11. K.TA	1076.330(24.449)	18 015 0 0	10.127(16.001)	88.418(20.839)	-23.258(-29.142 +15.787)	-26.654 3.303(-12.028 +11.629)
12. S.SU	1512.170(13.724)	24 023 0 0	16.095(5.056)	83.021(12.974)	-12.322(-0.000 +10.248)	-20.586 5.461(-9.737 +13.729)
13. K.YA	1138.940(2.579)	17 0 0 0 0	14.565(1.733)	85.435(2.836)	3.450(-2.095 +6.608)	+1.348 5.294(-1.488 +2.503)
14. K.IS	1074.070(3.618)	14 0 0 0 0	14.152(1.191)	85.848(3.091)	2.042(-3.322 +9.792)	+1.769 9.184(-2.120 +3.193)
15. Y.MI	1201.570(6.899)	35 034 0 0	22.028(4.469)	77.972(7.226)	2.421(-0.000 +6.471)	-8.467 4.247(-4.487 +4.540)
16. Y.OW	949.714(3.659)	14 0 0 0 0	21.172(2.431)	78.828(4.755)	1.843(-3.345 +3.012)	-5.904 1.610(-2.010 +2.141)
17. J.KA						
18. K.SA	1126.920(4.146)	13 0 0 0 0	11.208(2.366)	88.730(4.195)	15.297(-10.842 +7.329)	+20.096 11.392(-1.836 +11.295)
19. N.NA	639.200(13.857)	10 0 0 2 0	10.482(20.582)	89.064(13.864)	10.247(-11.891 +7.598)	+25.614 -0.145(-8.869 +7.036)
20. Ta.M	1155.640(3.036)	14 0 2 0 0	18.332(3.471)	81.668(3.125)	-3.797(-2.082 +4.353)	-7.271 10.044(-1.371 +1.887)
21. Ya.A	989.846(2.409)	13 0 0 0 0	14.719(4.051)	85.149(4.699)	-0.832(-2.240 +5.135)	-4.818 28.388(-1.568 +5.791)
22. Y.KA						
23. Ma.S	955.400(6.287)	10 0 0 0 0	17.898(3.363)	82.102(6.758)	6.876(-8.878 +6.409)	+5.547 0.387(-4.463 +4.381)
24. Y.SU	1120.810(9.071)	16 0 0 0 0	13.478(3.285)	86.522(7.986)	22.472(-13.486 +10.123)	+21.000 22.601(-6.334 +12.799)
25. M.OK	1240.380(3.754)	13 0 2 0 0	15.498(2.894)	84.471(5.593)	-2.164(-2.015 +2.421)	-4.589 6.797(-1.293 +3.360)
26. A.MU	959.615(24.093)	13 0 2 0 0	27.743(22.034)	74.886(20.461)	8.232(-22.178 +21.340)	+9.483 5.195(-13.473 +18.660)
27. Se.G	1159.730(8.366)	11 0 0 0 3	8.121(2.889)	90.123(6.897)	-0.964(-4.535 +11.381)	+8.145 32.521(-4.466 +7.503)
28. K.KA	985.000(4.888)	13 0 0 0 0	10.668(1.498)	89.332(4.576)	-0.898(-3.797 +11.028)	+2.491 0.164(-2.898 +2.829)
29. A.YO	1150.460(11.034)	13 0 0 0 2	10.538(3.263)	84.836(12.562)	2.487(-6.264 +10.637)	+7.596 11.121(-5.934 +13.969)
30. M.KU						
31. M.SU	1016.000(25.790)	14 4 1 0 5	9.911(5.042)	80.252(11.549)	9.476(-14.178 +7.934)	+26.245 -0.538(-3.938 +8.818)
32. M.KA						
33. Y.FU						
34. S.UC	927.476(5.537)	21 0 0 0 0	15.562(2.096)	84.438(5.655)	8.610(-4.584 +4.002)	+6.043 1.407(-3.433 +3.970)
35. T.SA	1039.890(7.568)	18 0 0 0 0	18.731(3.602)	81.269(8.925)	5.351(-6.623 +4.793)	+7.196 2.121(-5.646 +5.421)

TEMPS DU CYCLE DE MARCHE (% / CYCLE (SD))

C.N NOM	mmsec (SD%/cycle)	MANQUE DE TOUCHE (G:B-T,D:H-T)	APPUI	OSCILLATIONT	GAUCHE APPUI D'ORTIL —SCIL. DE BALLE			DROIT APPUI D'ENFER —APPUI DE BALLE		
36. Y.SU	902.143(3.087)	14 0 0 0 0	2.399(1.197)	97.474(3.223)	0.555(-5.630	+14.268)	+16.271	5.970(-2.034	+5.718)	
37. T.MI	1054.220(6.925)	9 3 3 0 1	4.269(3.659)	87.690(10.454)	0.424(-5.031	+9.432)	+5.107	21.327(-2.857	+9.612)	
38. D.KA										
39. Y.JI	943.708(8.411)	24 0 0 0 0	14.451(3.534)	85.549(6.773)	4.565(-6.852	+8.415)	+12.499	2.831(-4.138	+6.701)	
40. H.TA	1060.100(8.620)	20 0 0 0 4	13.617(5.343)	85.968(10.097)	-0.217(-8.313	+10.771)	+4.282	5.491(-7.447	+7.755)	
41. T.TA	998.556(10.613)	18 0 0 0 0	18.571(3.494)	81.429(8.555)	2.715(-9.183	+8.558)	-0.328	13.531(-6.072	+11.453)	
42. K.SU	849.552(9.005)	29 0 1 0 0	12.393(7.209)	85.611(12.490)	2.245(-14.518	+12.040)	+8.082	1.128(-5.058	+5.029)	
43. Ma.Y										
4. T.EG	1087.000(10.615)	16 0 3 1 0	14.213(7.948)	85.787(15.565)	2.406(-12.794	+13.826)	+10.062	-1.125(-7.166	+7.570)	
45. T.EG	1114.100(20.282)	10 7 7 0 0			-1.107(-5.702	+1.380)	-6.759	41.603(-5.933	+14.751)	
46. Mi.S	930.391(4.854)	23 1 4 0 0	11.033(2.683)	88.476(5.209)	0.470(-3.622	+11.473)	-1.738	19.651(-2.911	+11.042)	
47. Ta.I	1081.940(4.197)	18 0 0 0 0	17.910(2.732)	82.090(4.487)	1.145(-4.507	+9.520)	+1.001	26.141(-2.698	+12.589)	
48. M.KO	855.176(21.366)	17 0 3 0 0	8.474(5.571)	86.312(7.715)	-3.513(-7.059	+7.243)	+1.935	0.303(-4.347	+4.366)	
49. Ta.S	916.043(7.525)	23 0 2 0 0	15.786(6.160)	81.940(8.977)	-5.056(-6.717	+9.856)	+12.136	0.190(-4.459	+4.404)	
50. S.HO	1059.850(31.060)	26 111 1 0	22.086(14.168)	83.485(27.680)	-14.233(-40.114	+23.991)	-14.758	1.754(-23.582	+30.457)	
51. K.OK	1018.240(11.186)	21 0 0 0 0	12.529(2.325)	87.471(11.533)	5.734(-7.296	+5.874)	+7.057	2.081(-6.124	+6.835)	
52. N.TA	918.759(6.459)	29 0 3 0 0	13.264(3.919)	86.440(6.365)	7.229(-7.734	+5.279)	+8.485	1.242(-4.663	+5.002)	
53. Mas.	1002.760(8.441)	17 0 0 0 0	7.784(3.334)	92.216(8.880)	1.836(-9.038	+8.162)	+10.541	1.490(-4.150	+3.982)	
54. K.MA	955.444(10.501)	27 0 2 0 0	28.503(9.072)	71.497(10.195)	4.043(-7.514	+6.735)	-3.032	-0.961(-6.811	+6.514)	
55. Y.IB	1001.240(12.085)	21 0 1 6 2	17.245(8.153)	78.646(11.739)	7.379(-13.531	+14.303)	+25.017	-1.707(-9.857	+9.806)	
56. N.MI	1005.890(2.844)	18 0 0 0 1	6.285(1.463)	93.715(3.182)	1.402(-2.557	+5.899)	+5.633	24.515(-1.666	+4.283)	
57. Y.HA	958.619(9.742)	21 1 7 0 0	14.250(7.258)	85.108(11.124)	8.170(-11.952	+10.104)	+3.937	5.866(-7.526	+9.775)	
58. M.FU	1015.940(3.154)	18 0 0 0 0	9.017(1.690)	90.983(4.489)	15.782(-6.683	+4.065)	+19.101	2.980(-1.797	+3.009)	
59. A.IS	924.312(5.428)	16 0 0 1 1	8.757(3.009)	90.148(6.799)	3.590(-11.502	+9.980)	+18.663	3.967(-3.340	+2.865)	
60. R.KA	953.727(20.248)	22 0 1 0 0	15.761(6.752)	84.077(17.140)	5.932(-12.962	+15.549)	+5.612	6.663(-12.264	+14.318)	
61. T.SA	1039.890(7.567)	18 0 0 0 0	18.731(3.602)	81.269(8.925)	7.351(-6.623	+4.793)	+7.196	2.121(-5.646	+5.421)	
62. M.HA	969.042(14.291)	24 0 2 0 0	10.835(5.565)	87.857(16.224)	- 3.383(-9.420	+8.153)	+5.608	-1.454(-7.169	+9.487)	
63. Ky.W	851.667(11.761)	15 0 0 0 0	11.566(4.372)	88.650(10.307)	3.679(-9.373	+11.370)	+12.610	2.889(-6.476	+10.663)	
64. S.MI	980.409(3.541)	22 0 0 0 0	19.477(1.879)	80.523(2.868)	2.059(-3.136	+14.064)	-0.955	0.435(-2.021	+1.773)	
65. Ai.K	915.333(14.271)	21 0 2 1 0	16.107(5.407)	80.793(13.033)	1.126(-8.438	+12.086)	+4.707	5.976(-7.314	+10.481)	
66. Yu.I	944.650(18.182)	20 1 2 0 0	11.655(3.323)	85.143(11.041)	6.508(-12.583	+11.165)	+7.861	0.307(-8.869	+8.589)	
67. A.SU	837.476(6.593)	21 0 2 0 0	14.150(6.612)	85.671(9.229)	-0.390(-8.271	+5.863)	+5.779	1.047(-5.030	+5.248)	
68. W.SA	876.280(10.851)	25 0 0 3 0	26.932(9.648)	73.068(7.010)	11.672(-14.463	+11.078)	+9.377	-4.169(-6.682	+6.053)	
69. E.TO										
70. H.KA	867.529(7.123)	17 0 0 0 3	5.919(2.763)	91.633(10.815)	-0.393(-11.342	+4.583)	+10.462	18.332(-4.646	+19.224)	

TEMPOS DE SAISIR ALTERNATIVEMENT LES BALLES

C.N NOM	SAISISSANT ALTERNATIVEMENT				PINÇANT		TAPANT		SYMPTÔME
	PHASE	DURÉ SEC	SIMULTA. TEMPO(F.)	ALTERNA. TEMPO(F.)	DROIT TEMPO(F.)	GAUCHE TEMPO(F.)	DROIT TEMPO(F.)	GAUCHE TEMPO(F.)	
1. H.NO	C	3.95	146(12)	68(1)	159(3)	190(4)	143(10)	236(15)	AUTISME
2. T.TA	D	0.63	185(11)		212(4)	209(3)	238(17)	231(17)	AUTISME
3. M.HO	D	3.95	176(16)				456(1)		INFIRMITÉ MOTRICE C.P.
4. S.KU	E	3.42	123(4)				207(3)		AUTISME
5. T.SH	A	7.36	122(7)	172(6)	225(13)	209(11)	263(19)	223(16)	AUTISME
6. T.IS	-	-							AUTISME
7. S.KI	C	5.14	58(11)	34(2)	173(2)	220(3)	278(21)	251(18)	DÉBILE MENTAUX
8. M.SU	B	12.12	240(22)	133(5)	202(3)	237(3)	278(64)	282(77)	AUTISME
9. Y.KI	A	6.90	218(44)	149(13)	162(2)	237(3)		263(36)	DÉBILE MENTAUX
10. M.NA	B		173(11)	112(3)	164(13)	113(13)	219(12)	195(12)	AUTISME
11. K.TA	D	0.95	178(6)		113(1)	162(1)			AUTISME
12. S.SU	F	2.37	150(4)		230(1)		314(11)		INFIRMITÉ MOTRICE C.P.
13. K.YA	C	4.26	117(12)	68(2)			275(10)	231(9)	AUTISME
14. K.IS	A	14.03	196(39)	254(10)	266(9)	319(8)	286(49)	277(59)	DÉBILE MENTAUX
15. Y.MI	-	-							INFIRMITÉ MOTRICE CÉRÉB.
16. Y.OW	B	7.36	258(13)	102(7)	190(4)	182(4)	233(30)	226(29)	AUTISME
17. J.KA	D	1.18	204(16)	178(6)			246(4)		DÉBILE MENTAUX
18. K.SA	B		156(7)	175(3)	177(6)	174(3)	201(15)	154(23)	PARÉSIE
19. N.NA	G	3.58							PARÉSIE
20. Ta.M	C	6.32	183(14)	64(1)			306(25)	263(21)	DÉBILE MENTAUX
21. Ya.A	A	13.40	269(22)	113(11)	193(4)	188(8)	332(49)	322(99)	MONGOLISME
22. Y.KA	E		103(6)				50(8)	95(4)	MONGOLISME
23. Ma.S	B	8.97	187(9)	170(7)	235(10)	235(4)	242(35)	250(22)	AUTISME
24. Y.SU	F	1.76	67(2)				161(6)	61(3)	AUTISME
25. M.OK	C	7.05	182(4)	57(2)	124(3)		159(8)	173(7)	DÉBILE MENTAUX
26. A.MU	E		122(4)				326(3)	261(4)	AUTISME
27. Se.G	D	1.40	204(17)				200(5)	288(13)	DÉBILE MENTAUX
28. K.KA	B	1.18	218(26)	98(10)			187(22)	196(25)	AUTISME
29. A.YO	D	3.55	136(11)		155(6)	144(5)	194(25)	191(23)	DÉBILE MENTAUX
30. M.KU	B	11.58	266(28)	154(9)			299(44)	329(44)	MONGOLISME
31. M.SU	G	-							DÉBILE MENTAUX
32. M.KA	G	-							DÉBILE MENTAUX
33. Y.FU	-	-							INFIRMITÉ MOTRICE CÉRÉB.
34. S.UC	A	12.53	167(38)	233(6)	246(7)	178(11)	218(30)	228(24)	MONGOLISME
35. T.SA	F		57(2)						INFIRMITÉ MOTRICE CÉRÉB.

TEMPOS DE SAISIR ALTERNATIVEMENT LES BALLES

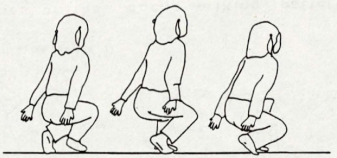
C.N NOM	SAISISSANT ALTERNATIVEMENT				PINÇANT		TAPANT		SYMPTÔME
	PHASE	DURÉ SEC	SIMULTA. TEMPO(F.)	ALTERNA. TEMPO(F.)	DROIT TEMPO(F.)	GAUCHE TEMPO(F.)	DROIT TEMPO(F.)	GAUCHE TEMPO(F.)	
36. Y.SU	B	6.71	196(20)	126(1)			227(20)	201(20)	MONGOLISME
37. T.MI	D	4.61	182(14)		160(11)	152(2)	213(10)	202(7)	PARÉSIE
38. D.KA	G	-							MICROCÉPHALE
39. Y.JI	F-	0.66	54(2)		93(2)				DÉBILE MENTAUX
40. H.TA	E	0.97	185(3)				139(5)	195(7)	DÉBILE MENTAUX
41. T.TA	D	1.32	146(11)				278(5)	274(6)	DÉBILE MENTAUX
42. K.SU	G	-							PARÉSIE, INFIR. MOTRICE
43. Ma.Y	E	4.21	82(3)				177(8)	182(2)	AUTISME
44. T.EG	C	13.21	174(11)	92(2)				65(5)	MONGOLISME
45. T.EG	F	1.61	41(4)				62(2)	95(1)	DISFONCTION CÉRÉBLALE M.
46. Mi.S	C	4.11	184(28)	50(2)	238(8)		311(30)	257(29)	HYDROCÉPHALE
47. Ta.I	C	3.71	151(14)	44(2)	173(3)		249(6)	281(8)	INFIRMITÉ MOTRICE CÉRÉB.
48. M.KO	-	-							MONGOLISME
49. Ta.S	-	-							HYDROCÉPHALE
50. S.HO	F	-	67(2)				107(7)	159(6)	MONGOLISME
51. K.OK	F	-	57(2)						INFIRMITÉ MOTRICE CÉRÉB.
52. N.TA	-	-					268(4)	285(5)	AUTISME, PARÉSIE
53. Mas.	-	-							DÉBILE MENTAUX
54. K.MA	D	1.05	152(1)	57(1)	186(3)		214(6)	116(5)	MONGOLISME, INFIR. MOTR.
55. Y.IB	F	-	53(2)						HYDROCÉPHALE, PARÉSIE
56. N.MI	B	13.97	130(6)	112(8)	145(3)		159(9)	170(9)	DÉBILE MENTAUX
57. Y.HA	-	-							INFIR.MOTR.CÉRÉ., PARÉSIE
58. M.FU	D	1.71	145(11)		171(3)	162(6)	267(17)	266(19)	DÉBILE MENTAUX
59. A.IS	C	-	188(2)	87(3)	167(6)		197(10)	150(13)	DÉBILE MENTAUX
60. R.KA	-	-							MICROCÉPHALE
61. T.SA	-	-							PARÉSIE
62. M.HA	-	-							DÉBILE MENTAUX
63. Ky.W	-	-							HYDROCÉPHALE
64. S.MI	D	0.53	215(8)		178(11)	175(5)	187(6)	311(3)	AUTISME
65. Ai.K	-	-							RUBÉOLE CONGÉNITALE
66. Yu.I	-	-							AUTISME
67. A.SU	E	1.18	124(5)				145(4)	148(5)	CRÉTINISME
68. W.SA	F	1.03	71(1)						INFIRMITÉ MOTRICE CÉRÉB.
69. E.TO	-	-					110(4)		INFIRMITÉ MOTRICE CÉRÉB.
70. H.KA	E	2.37	107(2)					207(4)	AUTISME

RYTHMES EN ARTICULANT ET EN MÂCHANT

C.N NOM	PHASE	"Pa Pa・・・" 3・3・7 TEMPO(F.)	7 ○ TEMPO(F.)	3 ○ TEMPO(F.)	CONTINU TEMPO(F.)	"TaTa" TEMPO(F.)	"KanKan" TEMPO(F.)	MÂCHANT SENBEI TEMPO(F.)	AUTRES TEMPO(F.)
1. H.NO	-							55.32(23)	64.56(35)
2. T.TA	D				128.40(7)	116.58(9)	67.20(7)	25.80(9)	25.80(9)
3. M.HO	C		119.40(4)	56.46(3)		130.14(5)	132.54(4)	54.72(24)	
4. S.KU	-							57.54(32)	
5. T.SH	B	131.88(13)			60.00(8)	69.78(9)	109.62(13)	66.36(33)	
6. T.IS	-							41.04(22)	67.80(22)
7. S.KI	B	120.42(9)	208.56(6)	70.72(10)	81.42(4)	82.20(3)	92.70(4)	77.94(32)	
8. M.SU	A	127.26(14)			92.94(9)	104.28(6)	82.62(11)	68.10(25)	52.86(20)
9. Y.KI	C	27.96(4)			34.20(5)			88.68(42)	59.46(8)
10. M.NA	C	96.60(10)			80.28(2)	57.00(5)	63.12(3)	63.06(29)	67.56(9)
11. K.TA	F							44.52(20)	42.72(5)
12. S.SU	E							40.32(20)	
13. K.YA	D				76.32(3)			37.56(22)	18.06(6)
14. K.IS	A	112.26(13)			178.56(27)	174.90(27)	150.00(21)	66.48(24)	
15. Y.MI	-								
16. Y.OW	B				45.84(6)			72.30(25)	78.42(12)
17. J.KA	E				48.06(3)			68.10(30)	51.12(9)
18. K.SA	A	97.44(14)			176.04(24)	129.54(13)	127.62(9)	50.64(33)	43.14(4)
19. N.NA	E								
20. Ta.M	A	99.72(13)			157.68(21)	134.28(18)	151.32(15)	110.34(42)	
21. Ya.A	A	146.16(18)			95.22(14)	101.16(9)	136.74(13)	67.74(42)	
22. Y.KA	E							48.72(22)	
23. Ma.S	-							23.46(18)	
24. Y.SU	F							99.54(35)	109.38(22)
25. M.OK	-								
26. A.MU	F							39.84(40)	131.04(29)
27. Se.G	C			213.06(5)	213.06(4)		161.70(4)	69.00(32)	75.72(12)
28. K.KA	B	98.64(15)					88.74(12)	45.00(20)	65.94(10)
29. A.YO	A	98.16(13)				127.62(6)	146.16(4)	71.10(42)	44.88(28)
30. M.KU	-								
31. M.SU	F							42.00(46)	
32. M.KA	E							38.34(28)	
33. Y.FU	-							22.44(24)	
34. S.UC	A	101.22(13)			154.80(14)	146.88(15)	118.44(15)	102.60(26)	131.76(17)
35. T.SA	-								97.74(16)

RYTHMES EN ARTICULANT ET EN MÂCHANT

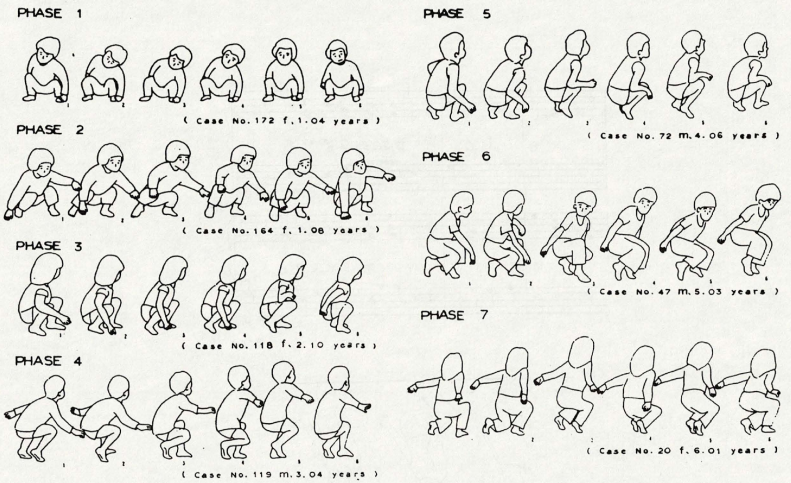
C.N NOM	PHASE	"Pa Pa・・・" 3・3・7 TEMPO(F.)	7○ TEMPO(F.)	3○ TEMPO(F.)	CONTINU TEMPO(F.)	"TaTa" TEMPO(F.)	"KanKan" TEMPO(F.)	MÂCHANT SENBEI TEMPO(F.)	AUTRES TEMPO(F.)
36. Y.SU	-							83.04(12)	77.34(16)
37. T.MI	E						64.80(4)	68.58(6)	118.26(15)
38. D.KA	-							52.44(13)	69.48(11)
39. Y.JI	D				80.88(2)	82.62(2)		93.48(20)	76.38(14)
40. H.TA	F							59.82(25)	67.08(13)
41. T.TA	F							82.50(35)	92.58(26)
42. K.SU	-							49.32(34)	
43. Ma.Y	E			76.02(3)			139.02(4)	71.28(21)	58.08(6)
44. T.EG	-							59.64(36)	67.20(11)
45. T.EG	-							45.06(18)	73.20(11)
46. Mi.S	A	95.64(13)			198.08(18)	74.04(7)	68.94(9)	43.14(24)	41.64(10)
47. Ta.I	-								
48. M.KO	F								54.30(6)
49. Ta.S	-								
50. S.HO	F							45.00(5)	41.52(7)
51. K.OK	F								
52. N.TA	F								
53. Mas.	F							32.16(23)	62.04(8)
54. K.MA	E							47.64(11)	40.92(3)
55. Y.IB	F							98.22(10)	109.86(13)
56. N.MI	F								53.88(9)
57. Y.HA	F								
58. M.FU	E							64.50(16)	
59. A.IS	B				91.50(13)	137.76(8)	148.08(4)	101.04(32)	84.24(9)
60. R.KA	-							77.82(39)	
61. T.SA	E							122.64(66)	123.00(40)
62. M.HA	F							54.06(27)	80.88(6)
63. Ky.W	E							48.60(9)	66.24(9)
64. S.MI	E							50.22(36)	71.04(20)
65. Ai.K	F							30.06(6)	
66. Yu.I	-								
67. A.SU	B	58.62(8)	63.66(6)	66.66(4)	135.72(2)	146.16(2)	112.74(2)		
68. W.SA	F							78.48(39)	95.82(15)
69. E.TO	-								55.92(7)
70. H.KA	F							30.48(17)	



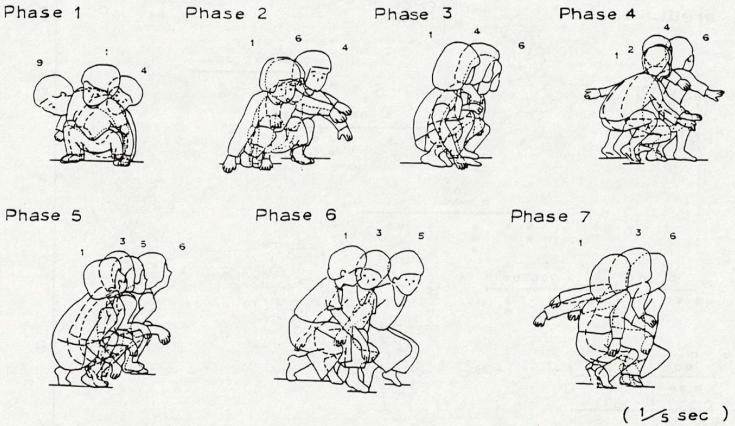
あひる

よちよち　あひるさん　かわいい　な

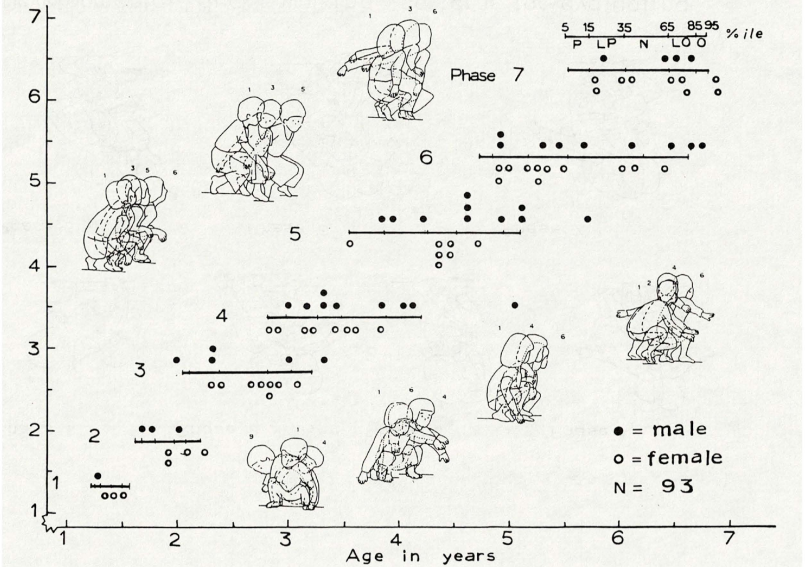
よち　よち　あひるさん　かわいい　な



Seven developmental phases of the "duck's walking" pattern (1/5 sec.)

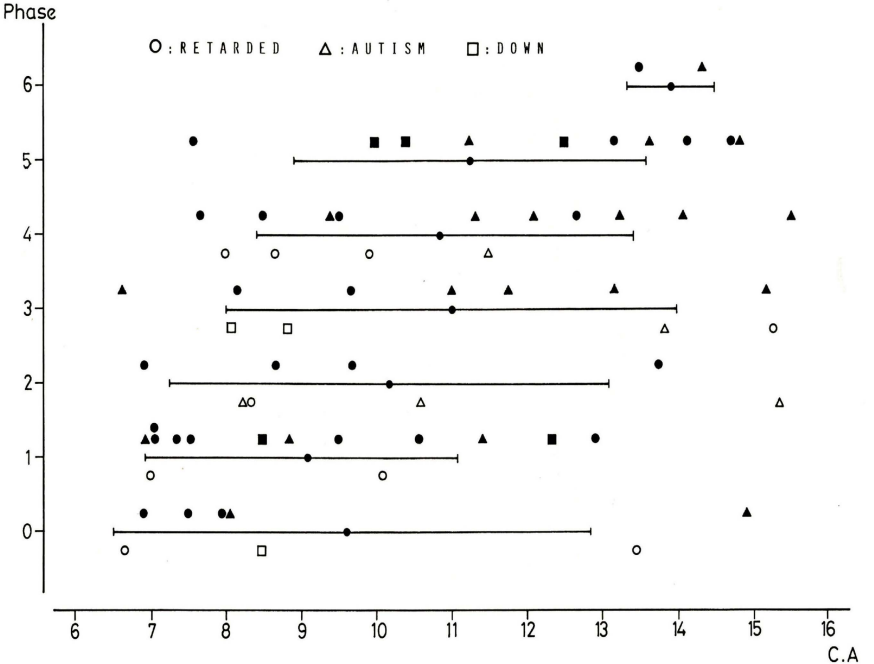


Developmental "duck's walking" patterns for evaluating

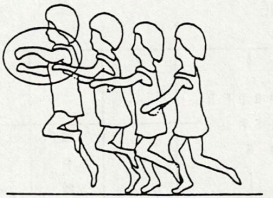

Phase 7
6
5
4
3
2
1
5 15 35 65 85 95 % ile
P LP N LO O
● = male
o = female
N = 93
Age in years

SUBJECTS

AGE	RETARDED M	RETARDED F	DOWN M	DOWN F	AUTISM M	AUTISM F	TOTAL M	TOTAL F
14 - 15	2	1	0	0	6	1	8	2
12 - 13	5	1	2	0	4	1	11	2
10 - 11	1	2	2	1	5	2	8	5
8 - 9	9	4	1	3	3	1	13	8
6 - 7	9	2	0	0	2	0	11	2
	36		9		25		70	

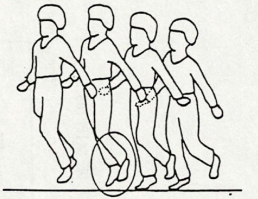

Phase
O : RETARDED
Δ : AUTISM
□ : DOWN
6
5
4
3
2
1
0
6
7
8
9
10
11
12
13
14
15
16
C.A

Phase 3



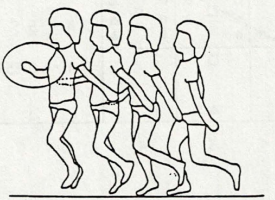
(C.N.78、4:00 yrs.)

Phase 5



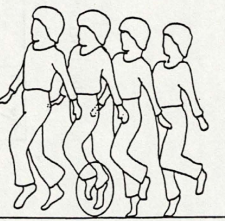
(C.N. 34、5:09 yrs.)

Phase 4



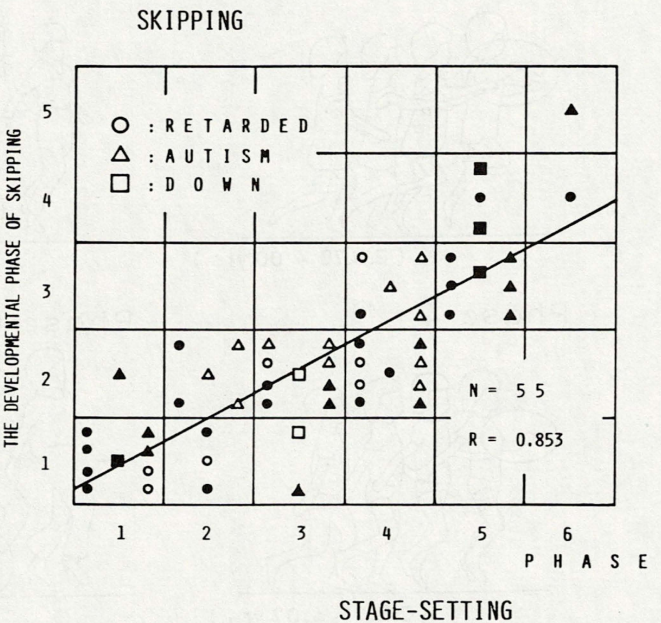
(C.N.71、4:07 yrs.)

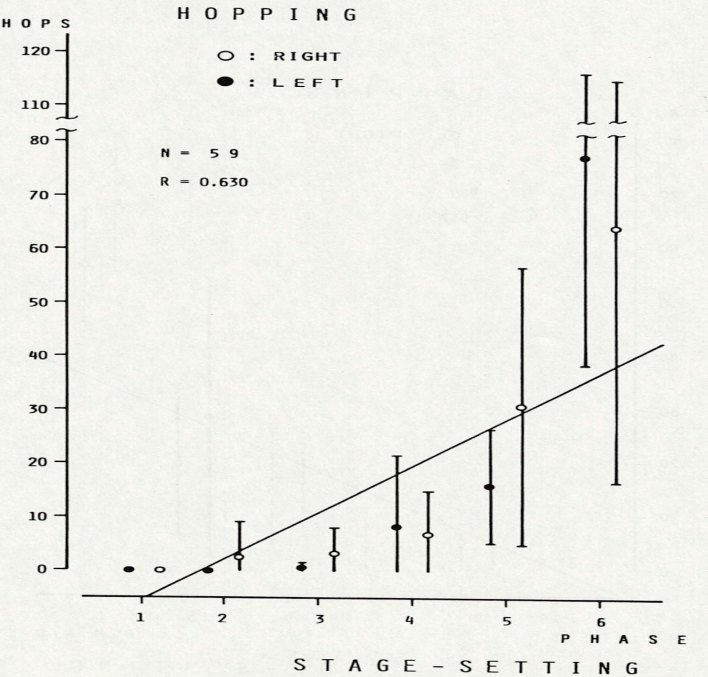
Phase 6

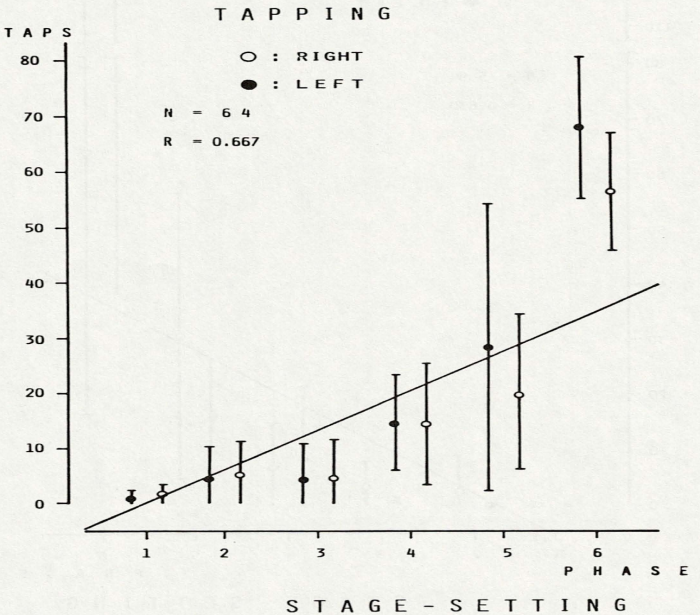


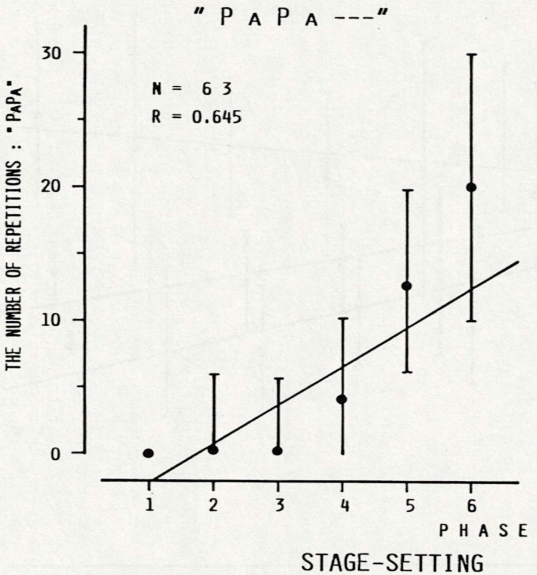
(1/5 sec.)

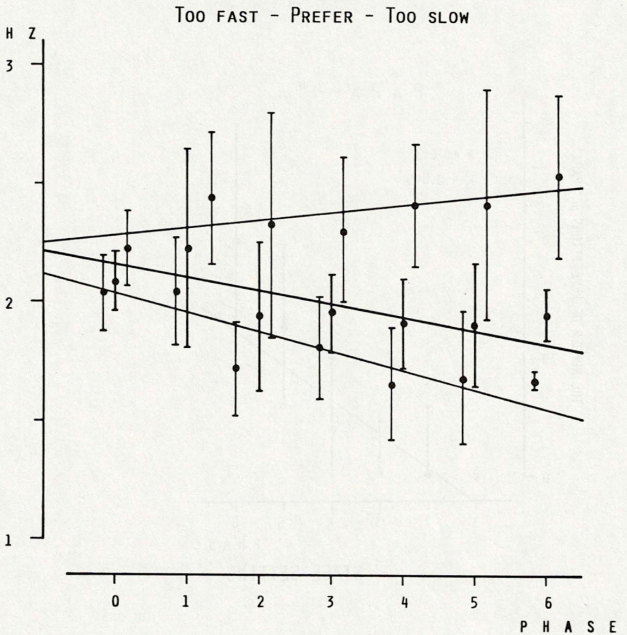
(C.N. 9、6:05 yrs.)

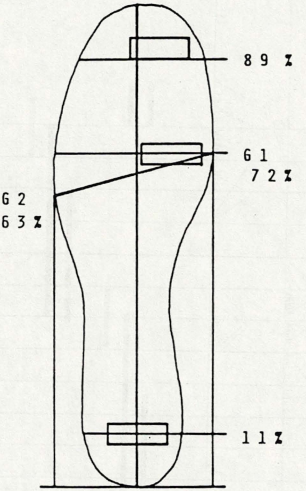

SKIPPING
○ : RETARDED
△ : AUTISM
□ : DOWN
N = 55
R = 0.853
THE DEVELOPMENTAL PHASE OF SKIPPING
1
2
3
4
5
1
2
3
4
5
6
PHASE
STAGE-SETTING

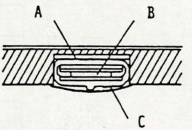

HOPPING
HOPS
120
110
80
70
60
50
40
30
20
10
0
○ : RIGHT
● : LEFT
N = 59
R = 0.630
1
2
3
4
5
6
PHASE
STAGE-SETTING


TAPPING
TAPS
80
70
60
50
40
30
20
10
0
○ : RIGHT
● : LEFT
N = 64
R = 0.667
1
2
3
4
5
6
PHASE
STAGE-SETTING


"PAPA---"
N = 63
R = 0.645
THE NUMBER OF REPETITIONS : "PAPA"
30
20
10
0
1
2
3
4
5
6
PHASE
STAGE-SETTING


WALKING
TOO FAST - PREFER - TOO SLOW
HZ
3
2
1
0
1
2
3
4
5
6
PHASE
STAGE-SETTING

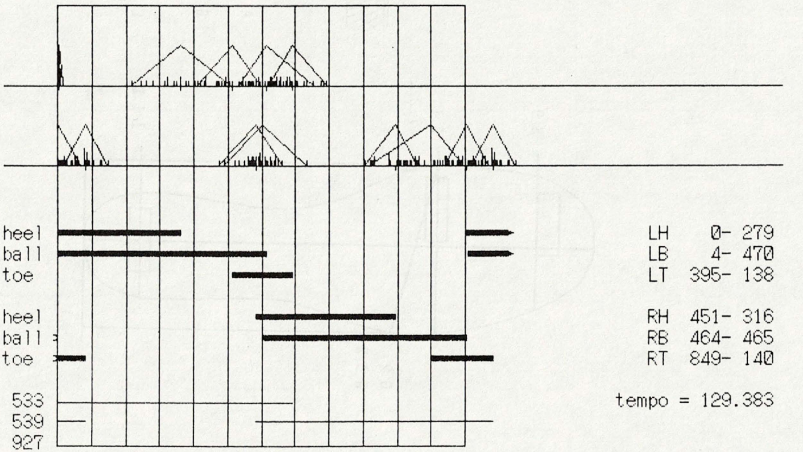


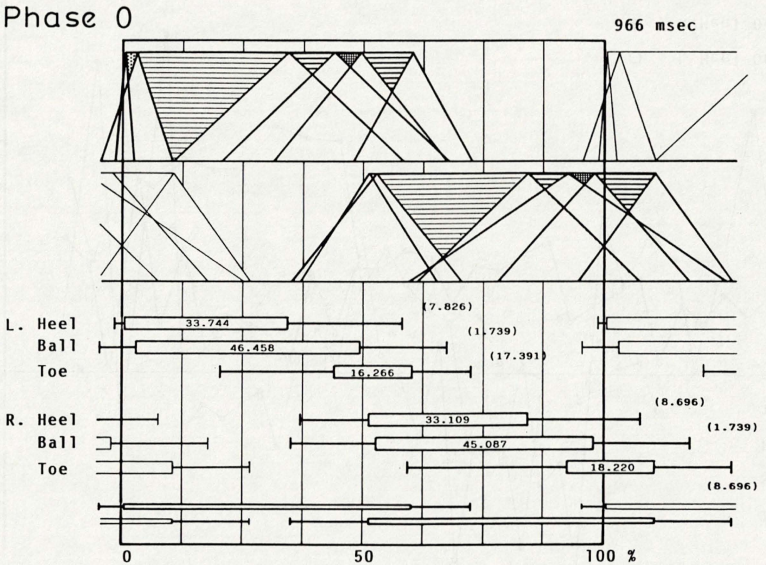


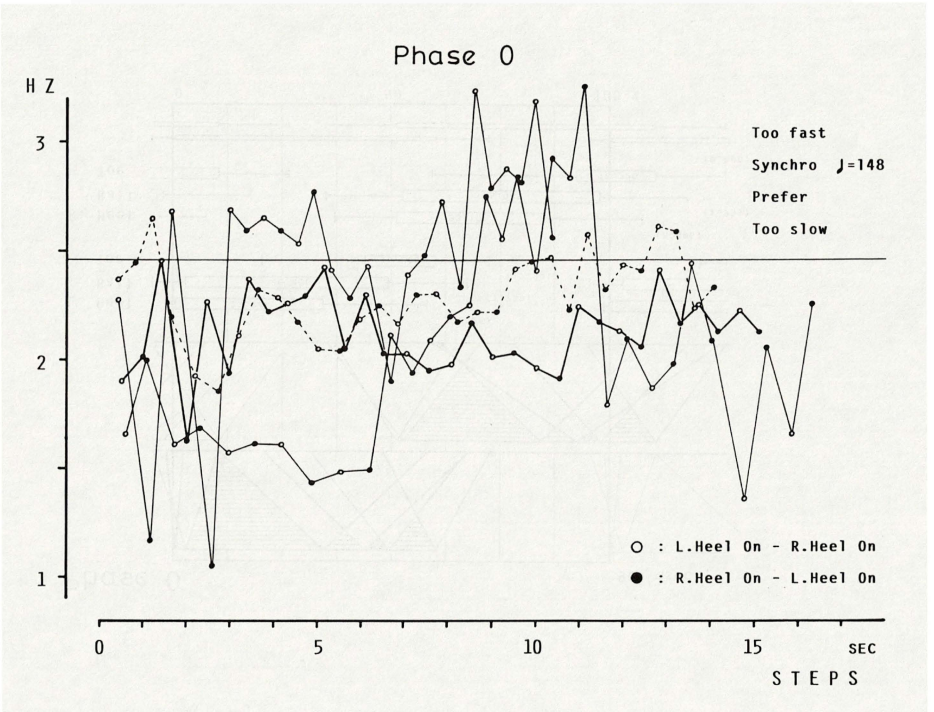
A : STAINLESS STEEL PLATE
(0.2 x 10 x 30 mm)
B : TAPE SWITCH
(TOKYO SENSOR, 107-LS.
3.5 x 10 x 30 mm)
C : SILICON 60 M

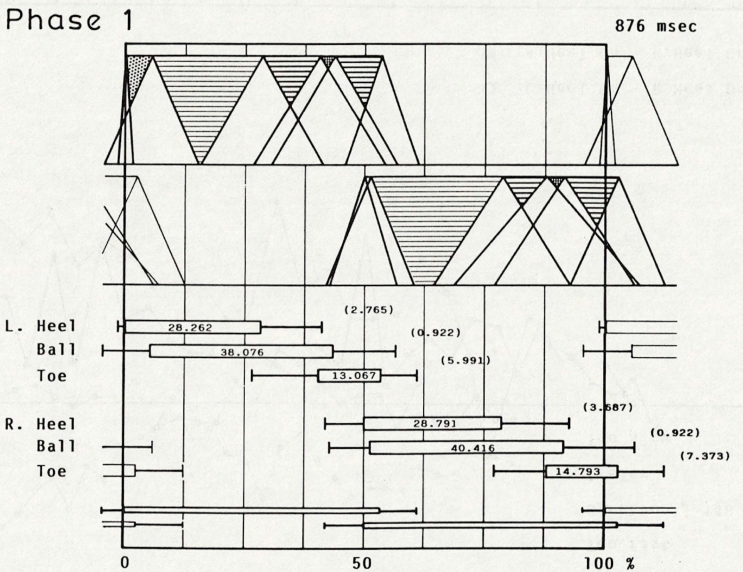
[ﾃﾞｰﾀ ﾉ ｼｭｳｹｲ]

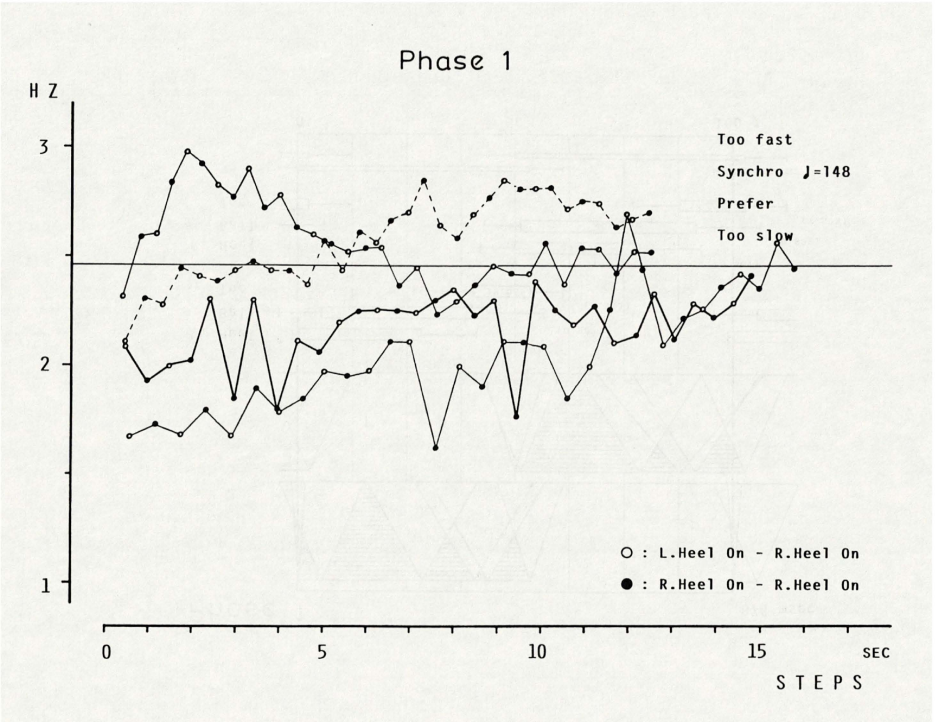
[B:UTSUSC11] case = 1 m sec = 1
number = 21 mode = 1 tempo = 0
miss (LH-B-T)=(0 0 0),(RH-B-T)=(0 0 0)

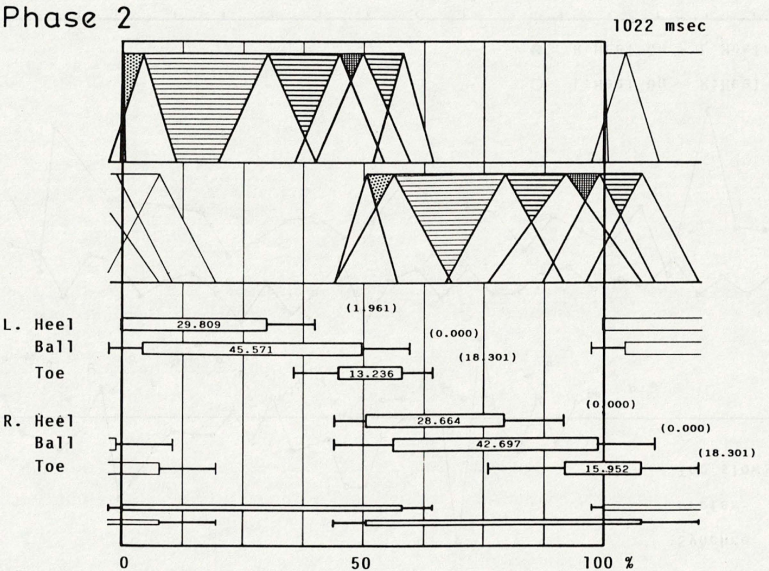


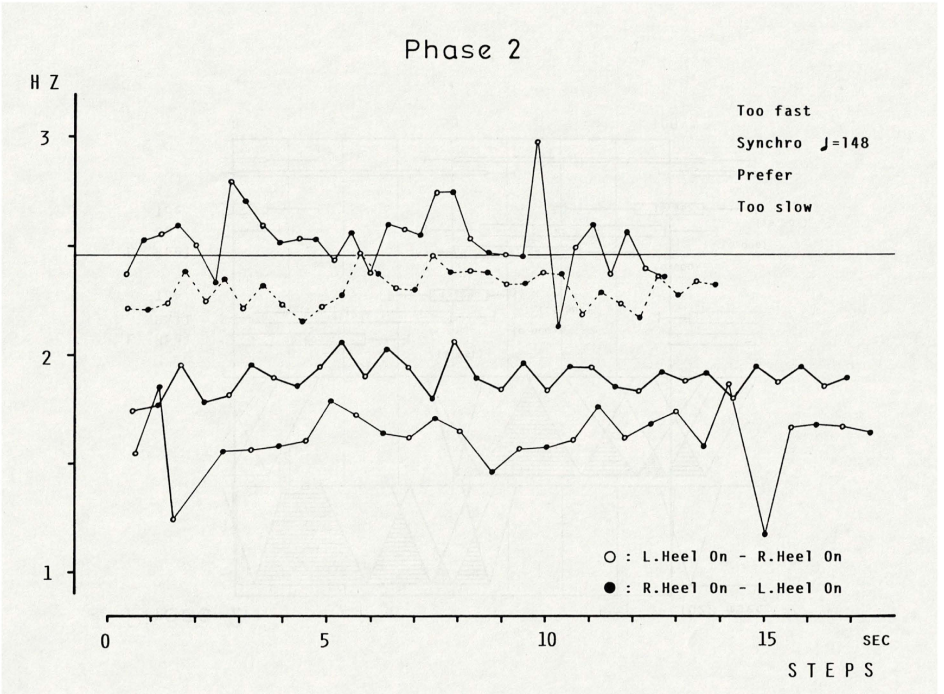

Phase 0
966 msec
L. Heel
Ball
Toe
R. Heel
Ball
Toe
33.744
(7.826)
(1.739)
46.458
(17.391)
16.266
(8.696)
33.109
(1.739)
45.087
18.220
(8.696)
0
50
100 %

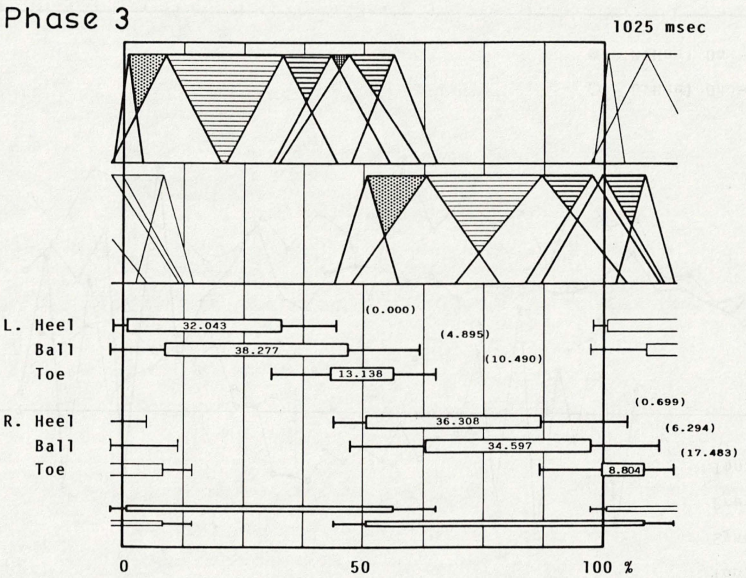

Phase 0
HZ
3
2
1
Too fast
Synchro ♩=148
Prefer
Too slow
○ : L.Heel On - R.Heel On
● : R.Heel On - L.Heel On
0
5
10
15
SEC
STEPS

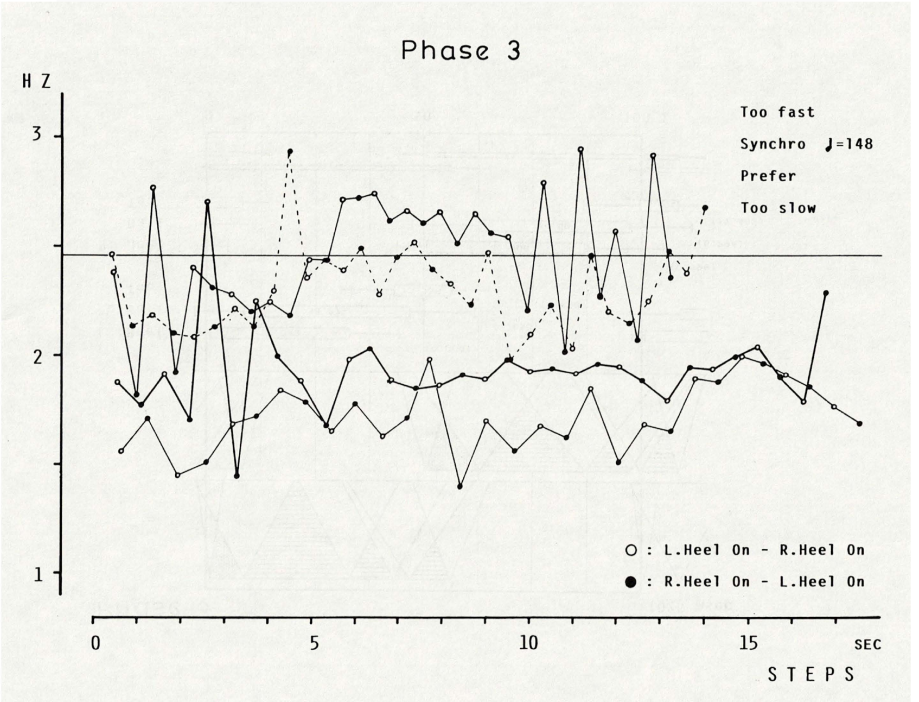

Phase 1
876 msec
L. Heel
Ball
Toe
R. Heel
Ball
Toe
28.262
(2.765)
(0.922)
38.076
(5.991)
13.067
(3.687)
28.791
(0.922)
40.416
(7.373)
14.793
0
50
100 %

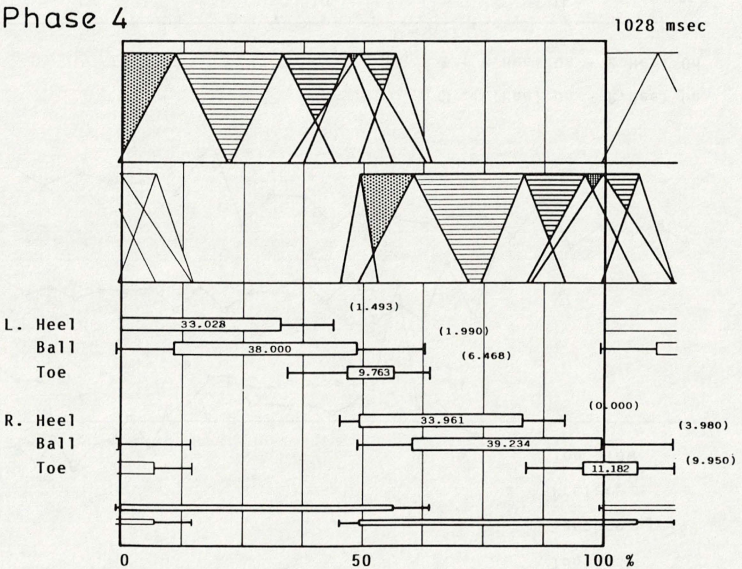

Phase 1
H Z
3
2
1
Too fast
Synchro ♩=148
Prefer
Too slow
○ : L.Heel On - R.Heel On
● : R.Heel On - R.Heel On
0
5
10
15
SEC
S T E P S

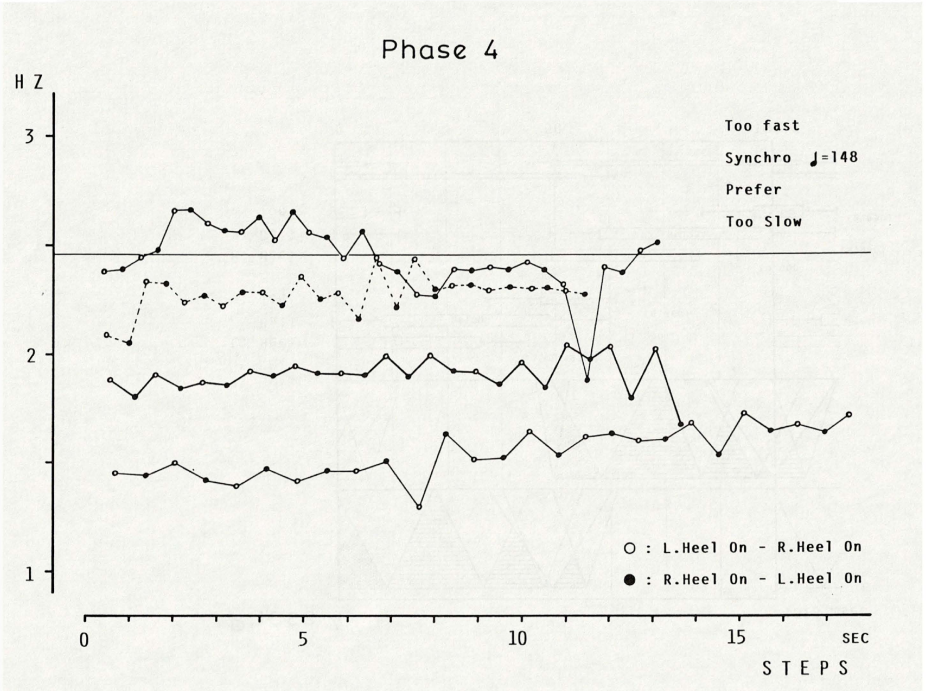

Phase 2
1022 msec
L. Heel
Ball
Toe
R. Heel
Ball
Toe
29.809
(1.961)
45.571
(0.000)
(18.301)
13.236
(0.000)
28.664
(0.000)
42.697
(18.301)
15.952
0
50
100 %

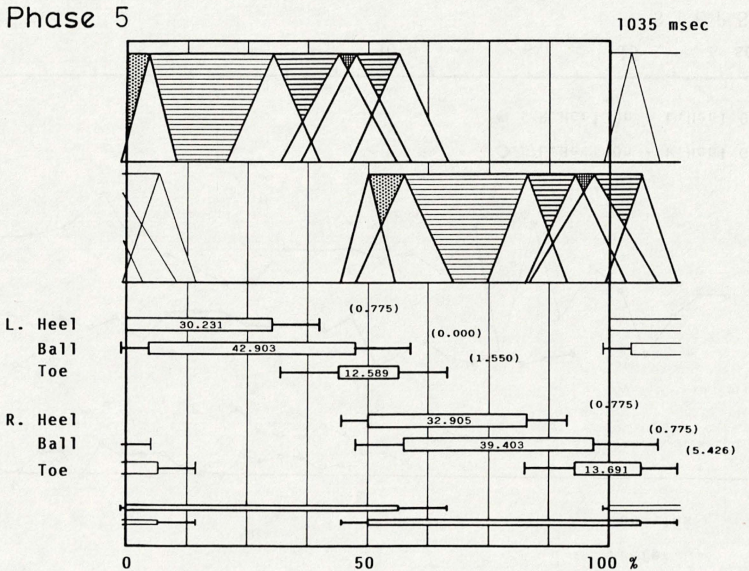

Phase 2
H Z
3
2
1
Too fast
Synchro ♩=148
Prefer
Too slow
○ : L.Heel On - R.Heel On
● : R.Heel On - L.Heel On
0
5
10
15
SEC
S T E P S

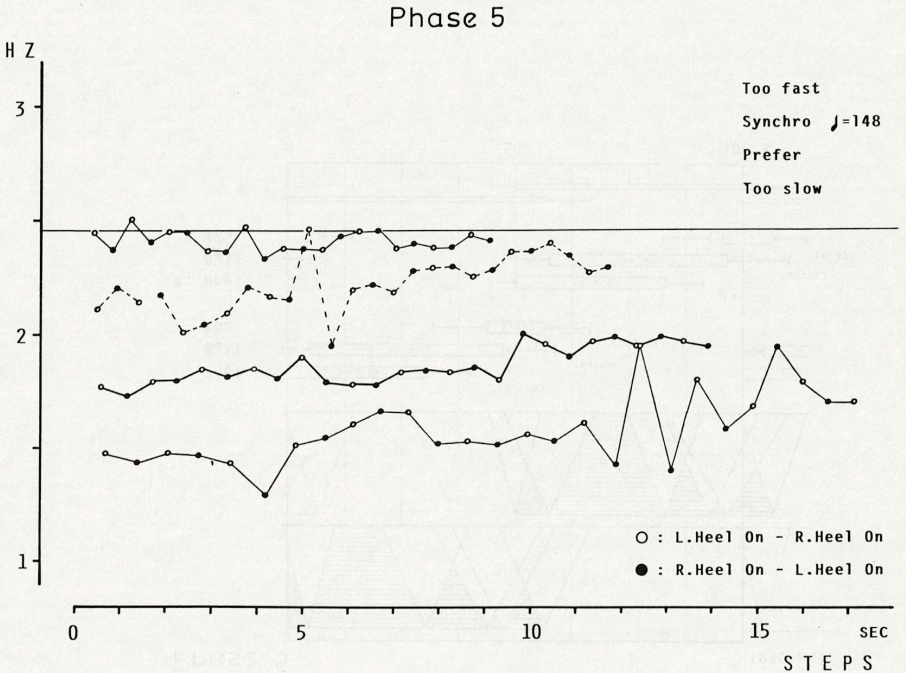

Phase 3
1025 msec
(0.000)
L. Heel
32.043
(4.895)
Ball
38.277
(10.490)
Toe
13.138
(0.699)
R. Heel
36.308
(6.294)
Ball
34.597
(17.483)
Toe
8.804
0
50
100 %

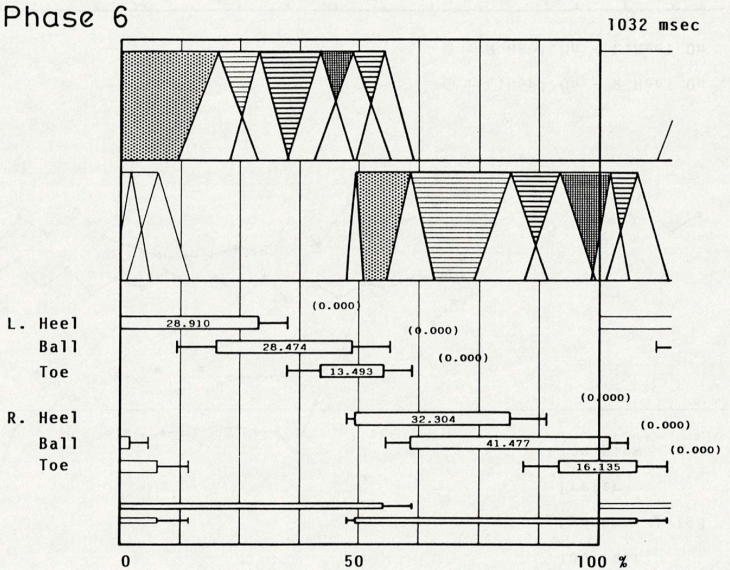

Phase 3
HZ
3
2
1
Too fast
Synchro ♩=148
Prefer
Too slow
○ : L.Heel On - R.Heel On
● : R.Heel On - L.Heel On
0
5
10
15
SEC
STEPS

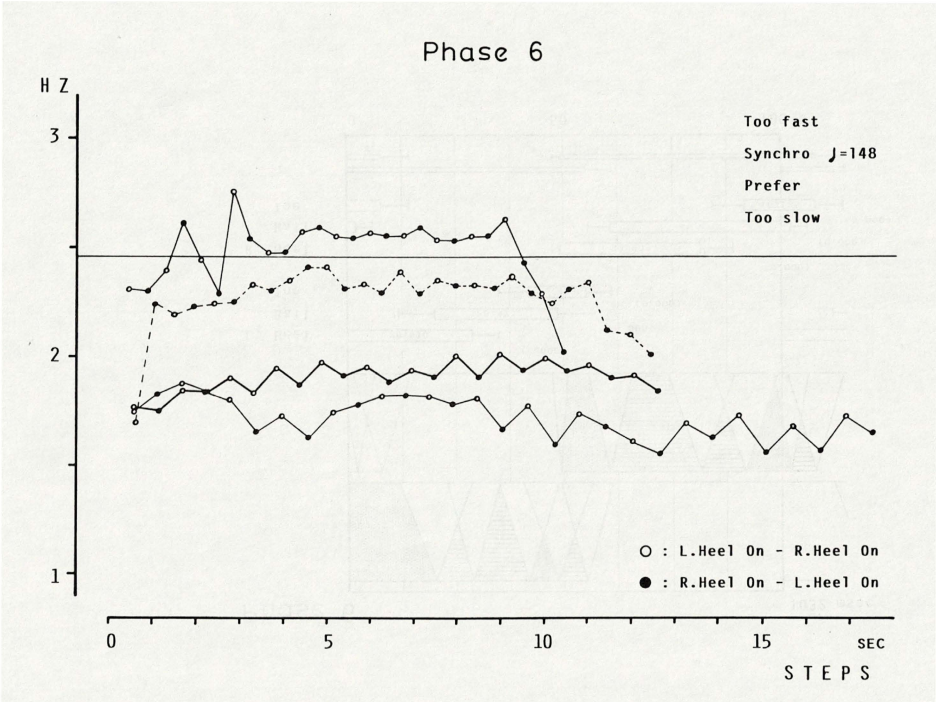

Phase 4
1028 msec
L. Heel
Ball
Toe
R. Heel
Ball
Toe
33.028
(1.493)
(1.990)
38.000
(6.468)
9.763
(0.000)
33.961
(3.980)
39.234
(9.950)
11.182
0
50
100 %

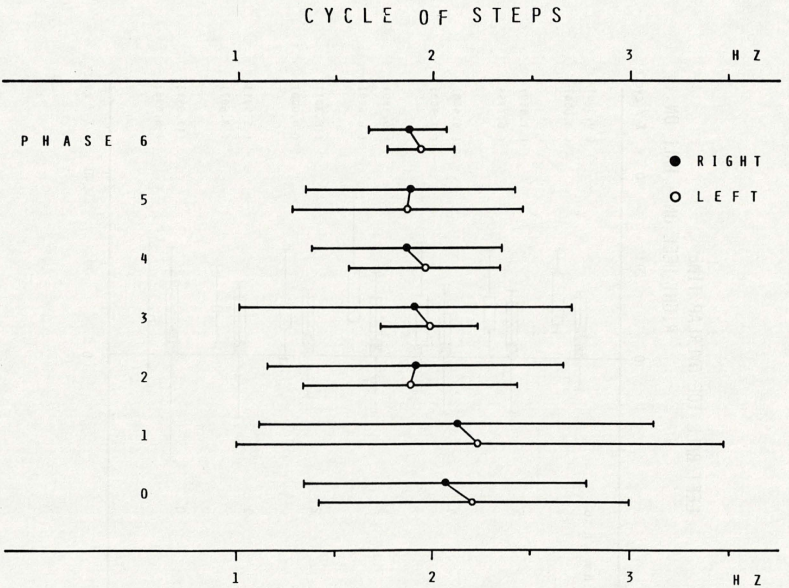

Phase 4
H Z
3
2
1
Too fast
Synchro ♩=148
Prefer
Too Slow
○ : L.Heel On - R.Heel On
● : R.Heel On - L.Heel On
0
5
10
15
SEC
S T E P S

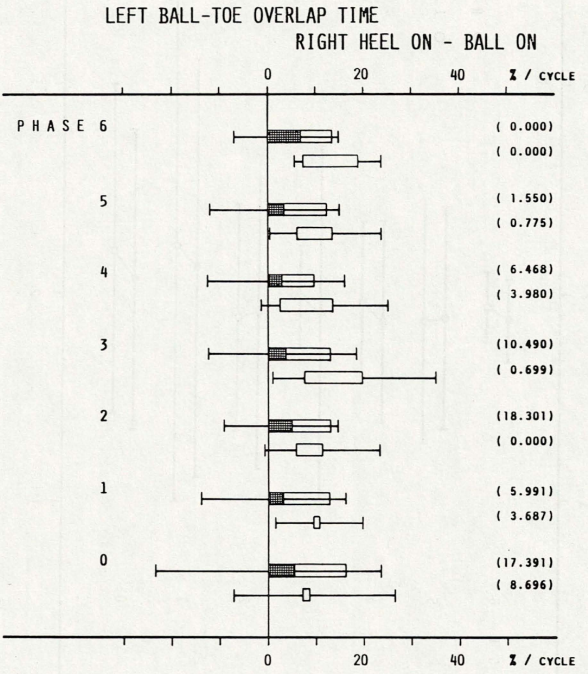

Phase 5
1035 msec
L. Heel
Ball
Toe
R. Heel
Ball
Toe
30.231
(0.775)
42.903
(0.000)
12.589
(1.550)
32.905
(0.775)
39.403
(0.775)
13.691
(5.426)
0
50
100 %


Phase 5
H Z
3
2
1
Too fast
Synchro ♩=148
Prefer
Too slow
○ : L.Heel On - R.Heel On
● : R.Heel On - L.Heel On
0
5
10
15
SEC
STEPS


Phase 6
1032 msec
L. Heel
Ball
Toe
R. Heel
Ball
Toe
28.910
28.474
13.493
32.304
41.477
16.135
(0.000)
(0.000)
(0.000)
(0.000)
(0.000)
(0.000)
0
50
100 %


Phase 6
H Z
3
2
1
Too fast
Synchro ♩=148
Prefer
Too slow
○ : L.Heel On - R.Heel On
● : R.Heel On - L.Heel On
0
5
10
15
SEC
STEPS


CYCLE OF STEPS
1
2
3
HZ
PHASE 6
5
4
3
2
1
0
RIGHT
LEFT
1
2
3
HZ


LEFT BALL-TOE OVERLAP TIME
RIGHT HEEL ON - BALL ON
0
20
40
% / CYCLE
PHASE 6
(0.000)
(0.000)
5
(1.550)
(0.775)
4
(6.468)
(3.980)
3
(10.490)
(0.699)
2
(18.301)
(0.000)
1
(5.991)
(3.687)
0
(17.391)
(8.696)
0
20
40
% / CYCLE

報 告 資 料

第 2 部

基本動作の習熟に関する筋電図学的解析

昭和63年度道立H養護学校・基本動作調査研究報告

1989. 3. 7

藤井力夫

北海道教育大学教育学部札幌分校・障害児教育研究室

A. 歩行運動のサイクル内パターン

B. 跳躍動作の筋電図学的解析

C. バイペダリズムの筋電図学的解析

D. 交互開閉動作の筋電図学的解析

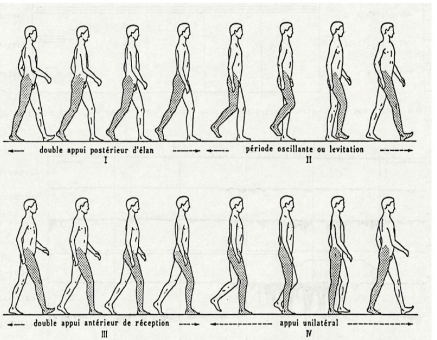
E. Stage-setting 能の筋電図学的解析

F. リズム・スコレール調査

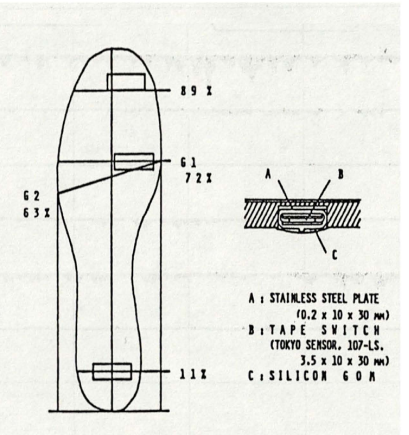
被　験　者　一　覧

name	sex	age	handicap	アヒル歩き	スキップ
K.FUJ	m	12:02	健常児	7	6
T.TAN	m	11:07	精神発達遅滞、言語障害	4	2
T.EJI	m	10:11	微細脳障害症候群	2	2'
C.MUR	m	10:10	自閉的傾向	6	5
M.SAW	f	10:10	水頭症	5	3
N.FUK	m	8:02	コッフィンローリー症候群	2	1
Y.TAK	m	8:00	自閉症、精神発達遅滞、言語障害	3	2
M.SAN	f	7:08	自閉症、心室中隔欠損症	5	4'

A.　歩行運動のサイクル内パターン

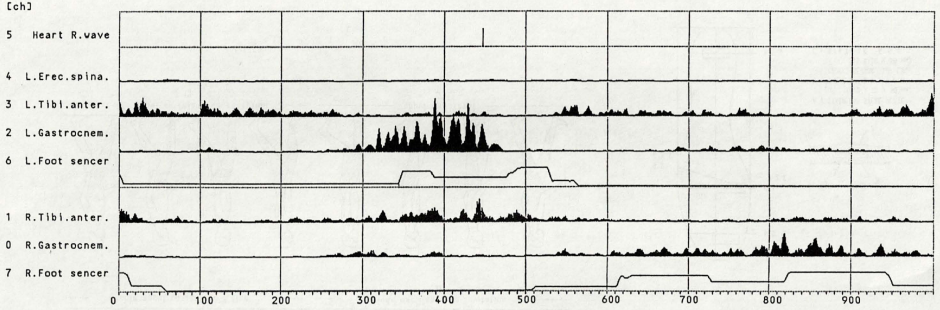


歩行サイクル

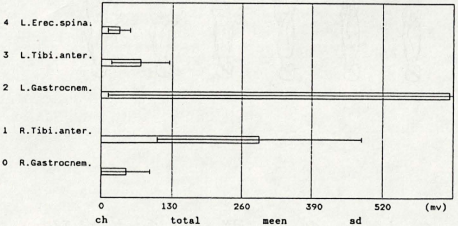


K. FUJ(12:02. m.)　　WALKING E.M.G. データ

[KA2]　meen= 872.000(sd　　)msec.　tempo=137.615　　[1]

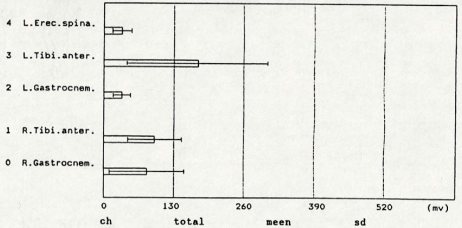


[KA2 12:02. m] EMG data from 388 to 510(106.384 msec / cycl 872.000 msec)



ch	total	meen	sd
4	3942.260	32.051	20.097
3	8790.320	71.466	52.719
2	79147.700	643.477	630.540
1	35999.500	292.679	189.875
0	5531.540	44.972	43.634

[KA2 12:02. m] EMG data from 511 to 614(89.816 msec / cycl 872.000 msec)

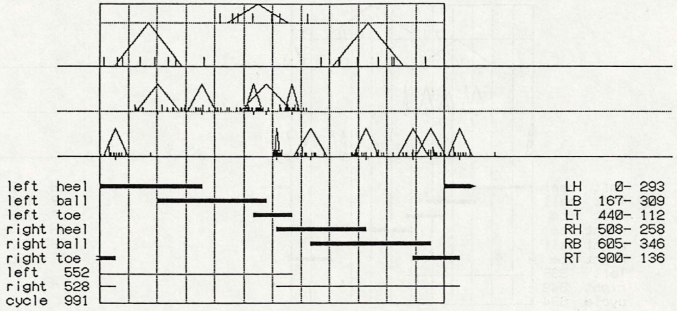


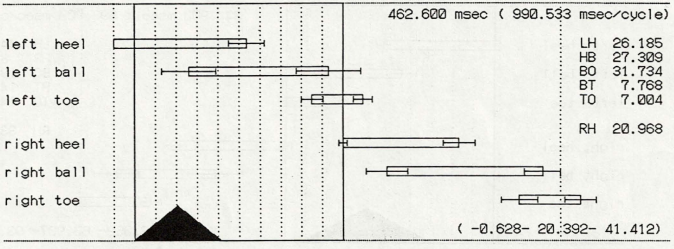
ch	total	meen	sd
4	3474.030	33.404	18.276
3	18138.300	174.406	131.703
2	3507.210	33.723	16.254
1	9872.030	94.923	49.525
0	8316.000	79.962	69.933

PREFER (K. FUJ. 12:02. m.)

[B:FUJIC12]

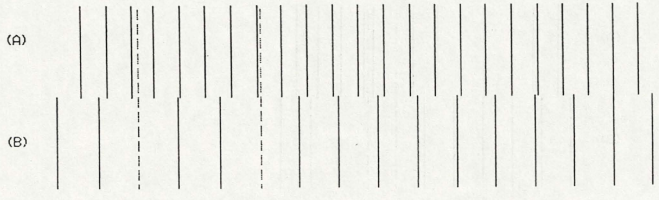
case = 1 mode = 1 m sec= 1 synchro=0 cycle = 15
no touch / cycle (LH-B-T)=(0 0 0), (RH-B-T)=(0 0 0)
tempo = 121.147 (sd 2.575) h.rate = 93.838 (sd 1.676)





LH -9.872(0.000)- 53.495(+8.360)%
LB 26.185(-12.993)- 92.996(+15.574)%
LT 85.228(-5.175)-109.526(+4.513)%

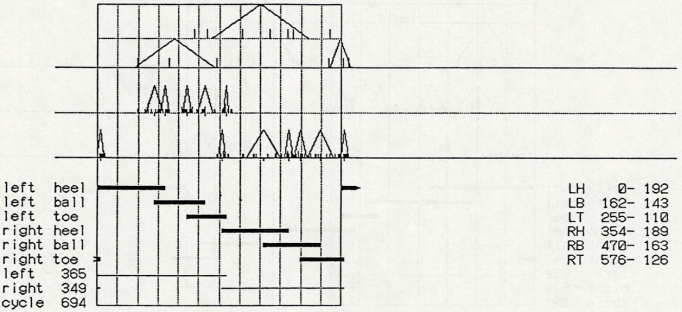
RH 0.000(-1.882)- 55.700(+7.738)%
RB 20.969(-10.021)- 95.763(+8.974)%
RT 84.710(-8.801)-114.123(+7.574)%

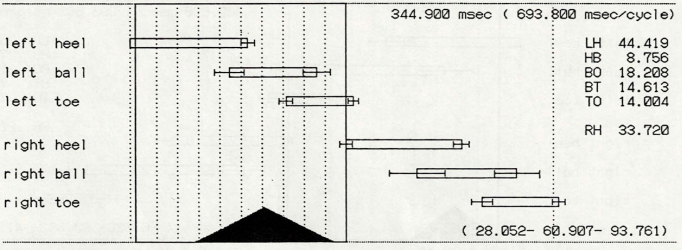


(A) heart rhythm (B) walking cycle

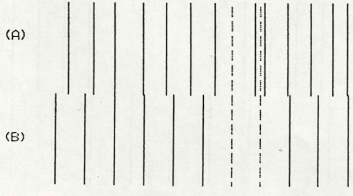
TOO FAST (K.FUJ.12:02.m.)

[B:KEN2C24] case = 1 mode = 2 m sec= 1 synchro=0 cycle = 10
no touch / cycle (LH-B-T)=(0 0 0), (RH-B-T)=(0 0 0)
tempo = 172.961 (sd 2.923) h.rate = 110.416 (sd 15.425)





LH -2.493(0.000)- 53.175(+3.090)% RH 0.000(-3.081)- 54.857(+3.702)%
LB 44.419(-7.100)- 85.996(+6.262)% RB 33.720(-13.329)- 81.038(+10.729)%
LT 71.383(-3.211)-103.363(+2.418)% RT 64.627(-5.022)-101.160(+2.944)%

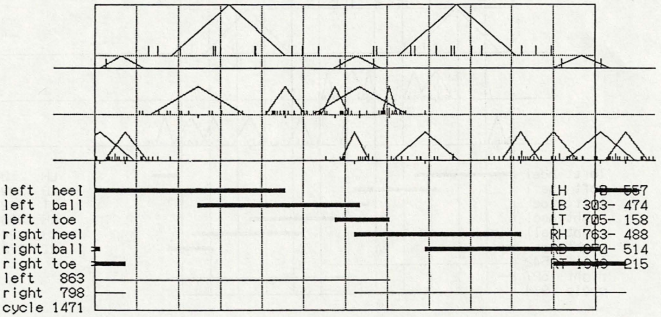


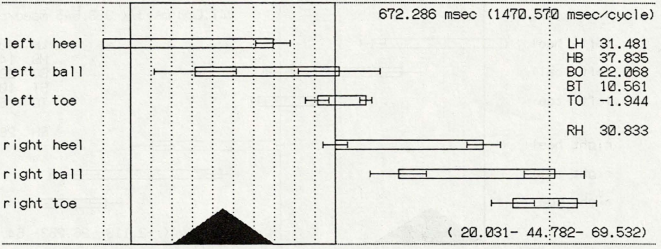
(A) heart rhythm (B) walking cycle

TOO SLOW (K.FUJ.12:02.m.)

[B:KEN3C31]

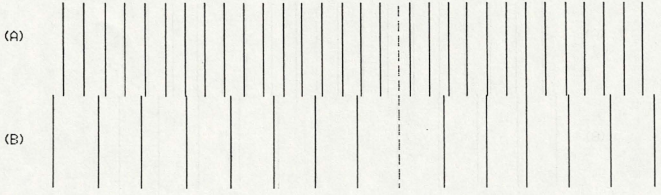
case = 1 mode = 3 m sec= 1 synchro=0 cycle = 14
no touch / cycle (LH-B-T)=(0 0 0), (RH-B-T)=(0 0 0)
tempo = 81.601 (sd 2.552) h.rate = 89.210 (sd 2.475)





LH-13.515(0.000)- 69.316(+8.490)%
LB 31.481(-19.787)-101.944(+20.012)%
LT 91.383(-5.765)-114.896(+3.139)%

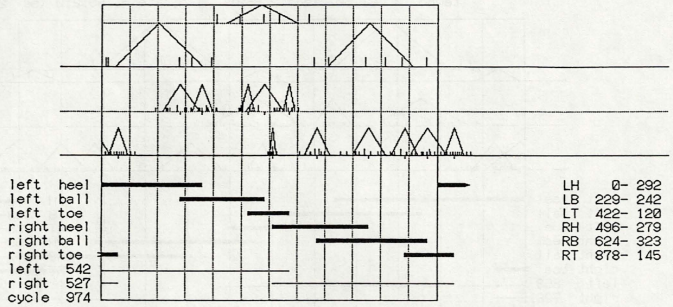
RH 0.000(-6.182)- 72.588(+8.224)%
RB 30.833(-13.866)-107.289(+14.937)%
RT 86.762(-10.494)-118.742(+9.025)%

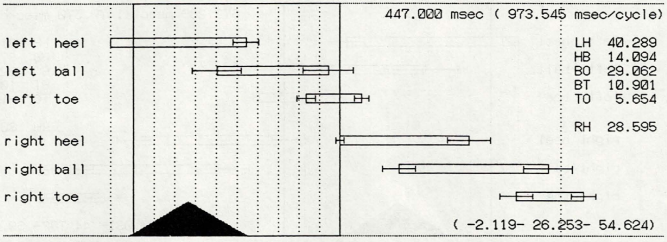


(A) heart rhythm (B) walking cycle

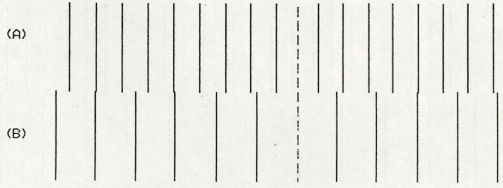
同期テンポ＝１２０　(K. FUJ. 12:02. m.)

[B:KEN3C41]　case = 1　mode = 4　m sec= 1　synchro=0　cycle = 11
no touch / cycle　(LH-B-T)=(0 0 0),　(RH-B-T)=(0 0 0)
tempo = 123.261 (sd 2.068)　h.rate = 97.720 (sd 2.162)





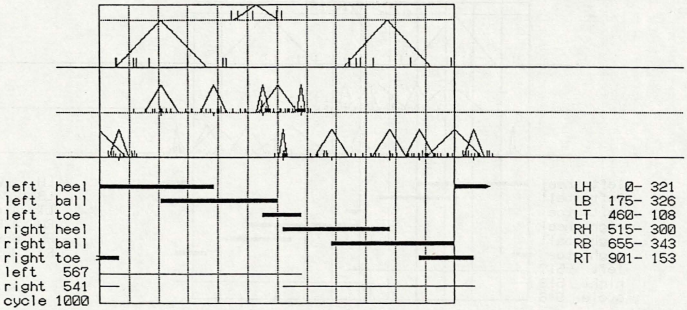
LH-10.921(0.000)- 54.383(+6.314)%　RH 0.000(-1.950)- 62.436(+10.559)%
LB 40.289(-11.822)- 94.346(+12.192)%　RB 28.595(-7.993)-100.773(+11.740)%
LT 83.445(-4.435)-110.291(+3.515)%　RT 85.459(-8.201)-117.795(+5.998)%

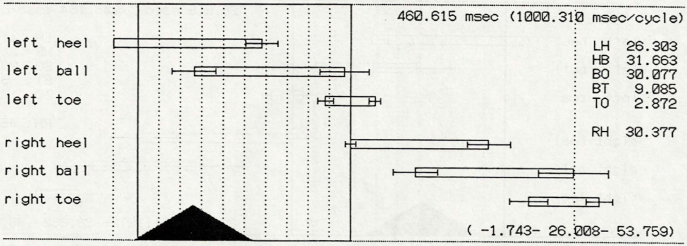


(A) heart rhythm　(B) walking cycle

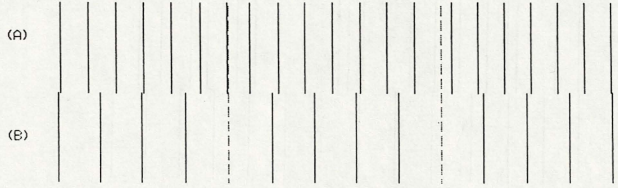
同期テンポ＝720　(K. FUJ. 12:02. m.)

[B:KEN3C48]　case = 1　mode = 4　m sec= 1　synchro=720　cycle = 13
no touch / cycle　(LH-B-T)=(0　0　0),　(RH-B-T)=(0　0　0)
tempo　= 119.963 (sd　1.691)　h.rate =　93.612 (sd　1.929)





LH-11.740(　0.000)- 57.966(+7.511)%　　RH　0.000(-2.389)- 65.197(+10.200)%
LB 26.303(-10.155)- 97.128(+11.525)%　　RB 30.377(-10.489)-104.927(+16.410)%
LT 88.043(-3.719)-111.406(+2.661)%　　RT 83.968(-8.871)-117.168(+6.113)%

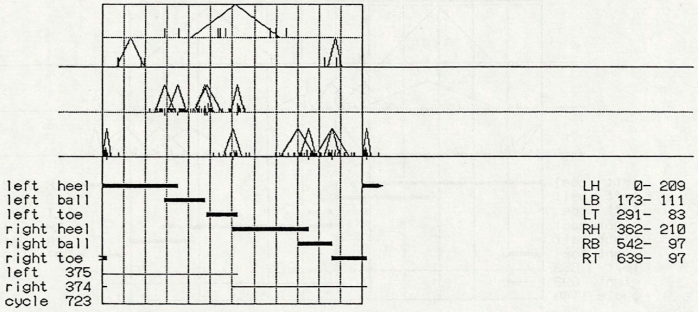


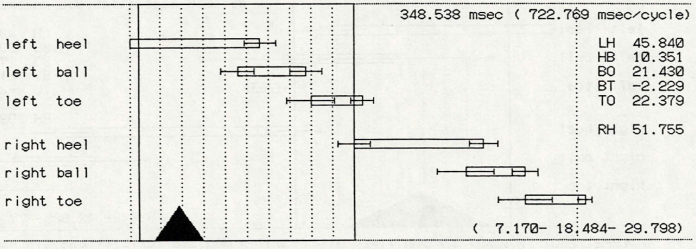
(A) heart　rhythm　　(B) walking cycle

TOO FAST (C.MUR.10:10.m.)

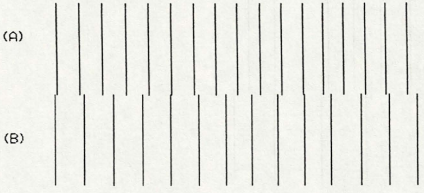
[B:MUCHC64]

case = 7 mode = 6 m sec= 1 synchro=0 cycle = 13
no touch / cycle (LH-B-T)=(0 0 0), (RH-B-T)=(0 0 0)
tempo = 166.028 (sd 7.479) h.rate = 105.471 (sd 4.236)





LH -3.752(0.000)- 56.191(+7.210)% RH 0.000(-7.704)- 60.230(+6.769)%
LB 45.840(-7.762)- 77.621(+7.412)% RB 51.755(-13.424)- 79.497(+5.858)%
LT 79.850(-11.336)-103.752(+5.462)% RT 79.629(-12.568)-107.371(+3.353)%

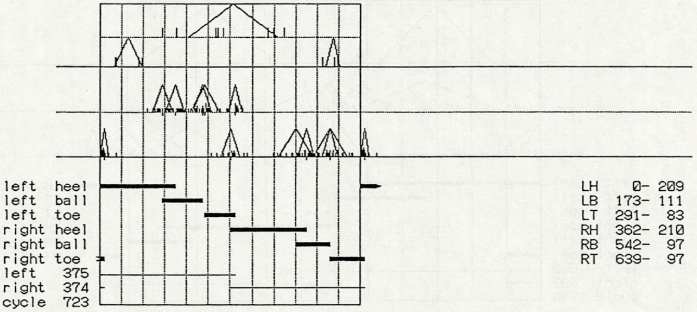


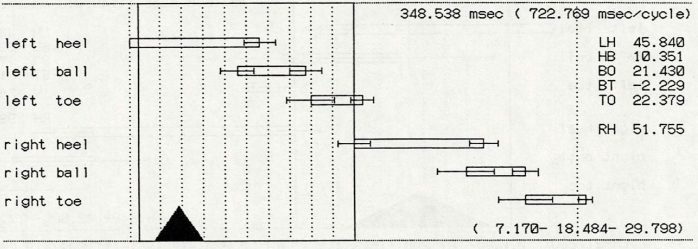
(A) heart rhythm (B) walking cycle

TOO FAST (C.MUR.10:10.m.)

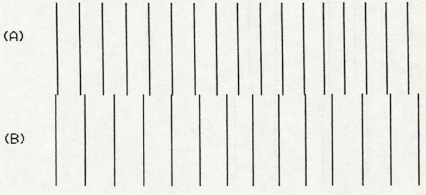
[B:MUCHC64]

case = 7 mode = 6 m sec= 1 synchro=0 cycle = 13
no touch / cycle (LH-B-T)=(0 0 0), (RH-B-T)=(0 0 0)
tempo = 166.028 (sd 7.479) h.rate = 105.471 (sd 4.236)





LH -3.752(0.000)- 56.191(+7.210)% RH 0.000(-7.704)- 60.230(+6.769)%
LB 45.840(-7.762)- 77.621(+7.412)% RB 51.755(-13.424)- 79.497(+5.858)%
LT 79.850(-11.336)-103.752(+5.462)% RT 79.629(-12.568)-107.371(+3.353)%

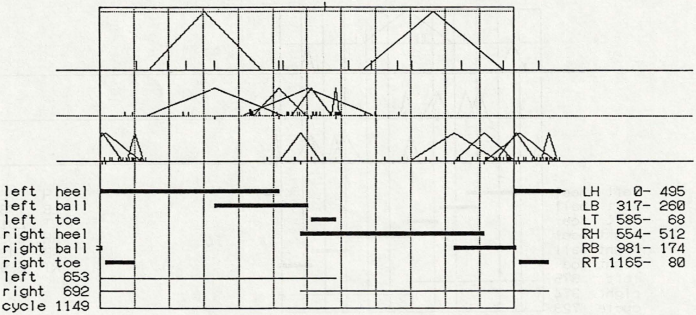


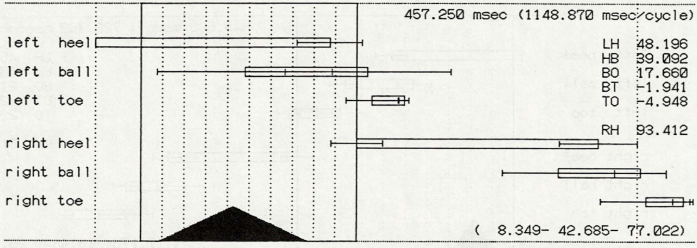
(A) heart rhythm (B) walking cycle

TOO SLOW (C.MUR.10:10.m.)

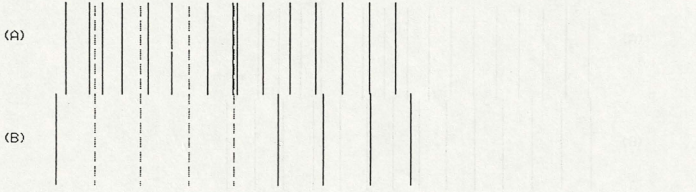
[B:MUCHC71]

case = 7 mode = 7 m sec= 1 synchro=0 cycle = 8
no touch / cycle (LH-B-T)=(0 0 0), (RH-B-T)=(0 0 0)
tempo = 104.450 (sd 7.853) h.rate = 92.593 (sd 8.693)





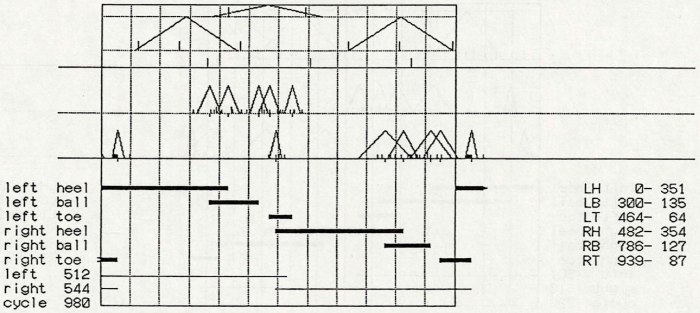
LH-21.050(0.000)- 87.288(+15.394)% RH 0.000(-12.196)-111.892(+18.055)%
LB 48.196(-40.512)-104.948(+38.564)% RB 93.412(-26.123)-131.356(+12.038)%
LT106.889(-12.102)-121.761(+2.413)% RT133.789(-20.592)-151.258(+4.903)%

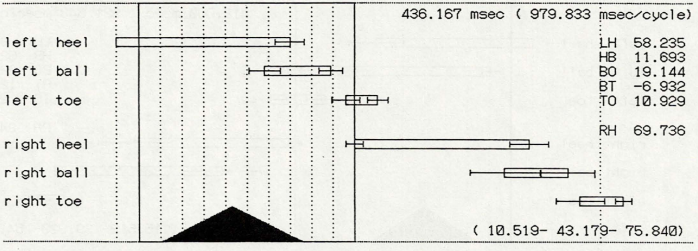


(A) heart rhythm (B) walking cycle

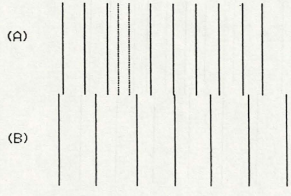
同期テンポ＝１２０ (C. MUR. 10:10. m.)

[B:MUCHC42] case = 7 mode = 4 m sec= 1 synchro=0 cycle = 6
no touch / cycle (LH-B-T)=(0 0 1), (RH-B-T)=(0 0 0)
tempo = 122.470 (sd 4.254) h.rate = 104.439 (sd 5.322)





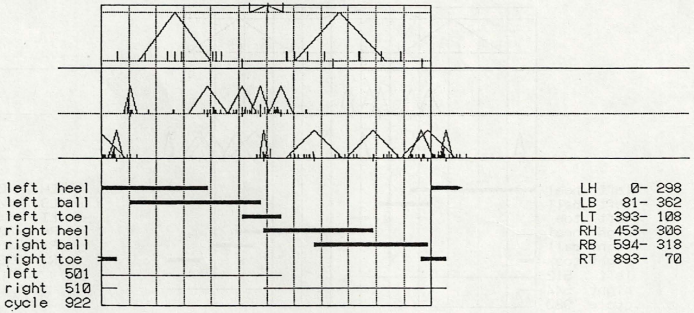
LH-10.470(0.000)- 69.927(+6.695)% RH 0.000(-3.854)- 81.123(+9.108)%
LB 58.235(-7.171)- 89.071(+5.589)% RB 69.736(-16.413)- 98.854(+12.589)%
LT 96.003(-6.449)-110.722(+4.921)% RT104.738(-11.048)-124.647(+3.746)%

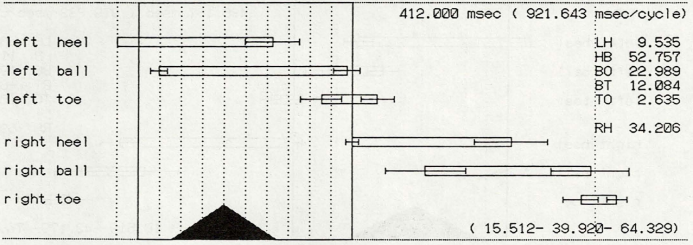


(A) heart rhythm (B) walking cycle

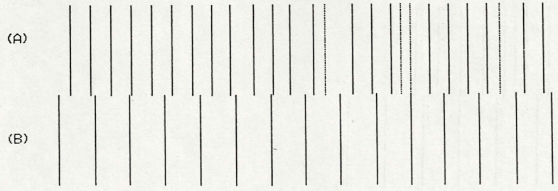
PREFER (M. SAW. 10:10. f.)

[B:SMISC11] case = 3 mode = 1 m sec= 1 synchro=0 cycle = 14
no touch / cycle (LH-B-T)=(0 0 0), (RH-B-T)=(0 0 0)
tempo = 130.202 (sd 3.222) h.rate = 111.980 (sd 13.804)





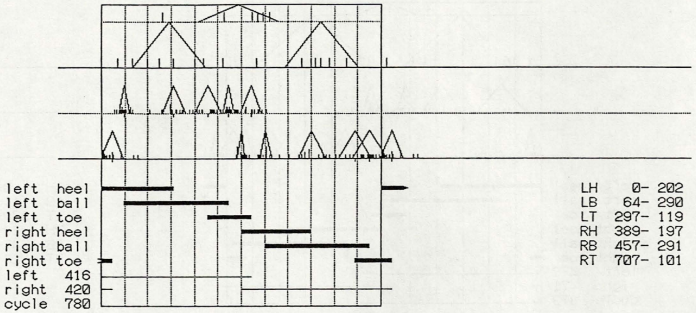
LH-10.056(0.000)- 62.292(+12.569)% RH 0.000(-2.925)- 74.289(+17.339)%
LB 9.535(-4.118)- 97.365(+6.291)% RB 34.206(-18.662)-111.356(+18.374)%
LT 85.281(-9.691)-111.564(+7.707)% RT106.761(-8.278)-123.700(+4.607)%

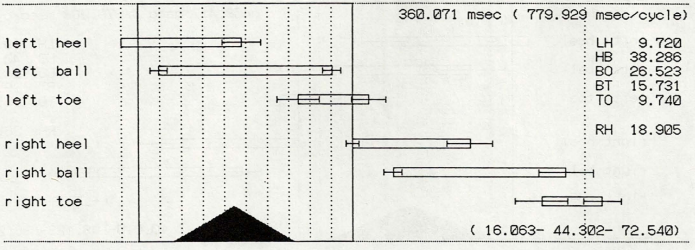


(A) heart rhythm (B) walking cycle

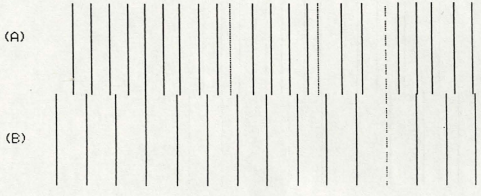
TOO FAST (M. SAW. 10:10. f.)

[B:SMISC23] case = 3 mode = 2 m sec= 1 synchro=0 cycle = 14
no touch / cycle (LH-B-T)=(0 0 0), (RH-B-T)=(0 0 0)
tempo = 153.860 (sd 3.705) h.rate = 122.269 (sd 14.279)





LH -8.014(0.000)- 48.006(+8.857)% RH 0.000(-3.143)- 54.791(+10.561)%
LB 9.720(-4.016)- 90.260(+4.042)% RB 18.905(-4.308)- 99.702(+12.659)%
LT 74.529(-10.084)-107.499(+7.901)% RT 88.455(-12.215)-116.604(+8.739)%

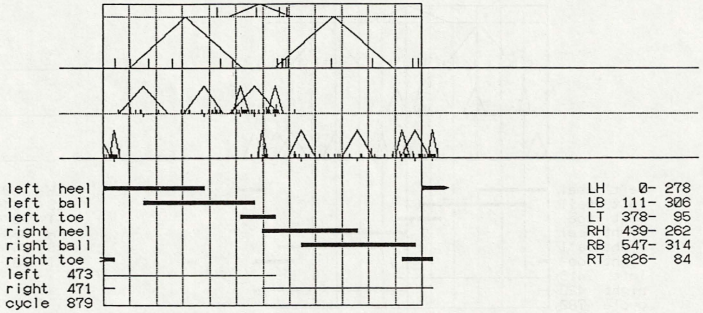


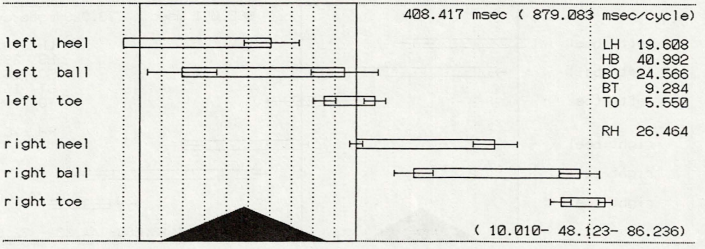
(A) heart rhythm (B) walking cycle

同期テンポ＝１２０ (M. SAW. 10:10. f.)

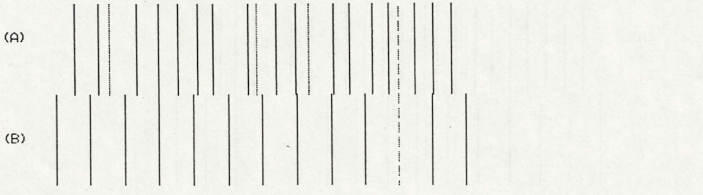
[B:SMISC41]

case = 3 mode = 4 m sec= 1 synchro=0 cycle = 12
no touch / cycle (LH-B-T)=(0 0 0), (RH-B-T)=(0 0 0)
tempo = 136.506 (sd 1.864) h.rate = 110.051 (sd 26.520)





LH -7.488(0.000)- 60.600(+12.777)% RH 0.000(-3.132)- 64.069(+10.290)%
LB 19.608(-15.937)- 94.450(+15.641)% RB 26.464(-9.073)-103.305(+9.403)%
LT 85.166(-5.413)-108.345(+5.072)% RT 94.777(-4.686)-115.242(+3.237)%

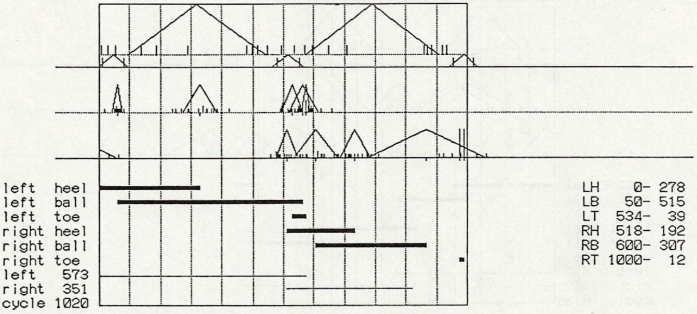


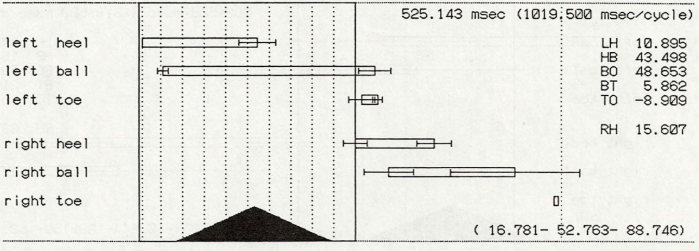
(A) heart rhythm (B) walking cycle

PREFER (T. TAN. 11:07. m.)

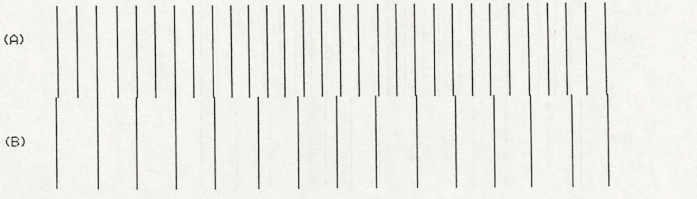
[B:TTESC21]

case = 1 mode = 2 m sec= 1 synchro=0 cycle = 14
no touch / cycle (LH-B-T)=(0 0 0), (RH-B-T)=(0 4 13)
tempo = 117.705 (sd 5.761) h.rate = 122.535 (sd 3.996)





LH 1.428(0.000)- 54.393(+8.622)% RH 0.000(-5.712)- 36.466(+7.879)%
LB 10.895(-2.634)-108.909(+7.640)% RB 15.607(-11.503)- 74.048(+30.195)%
LT103.047(-5.806)-110.460(+2.257)% RT 91.853(0.000)- 94.138(+0.000)%

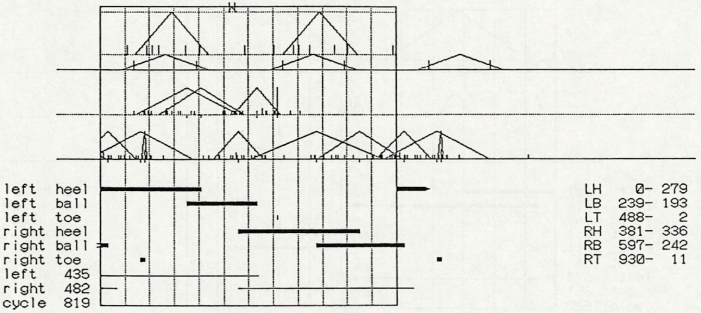


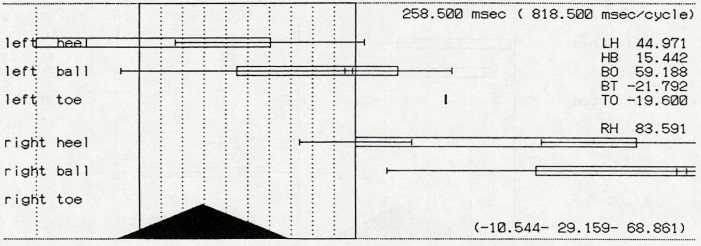
(A) heart rhythm (B) walking cycle

PREFER (T. EJI. 10:11. m.)

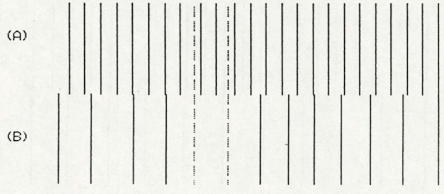
[B:ETAKC71]

case = 8 mode = 7 m sec= 1 synchro=0 cycle = 12
no touch / cycle (LH-B-T)=(0 0 11), (RH-B-T)=(0 0 5)
tempo = 146.610 (sd 20.835) h.rate = 146.870 (sd 1.618)





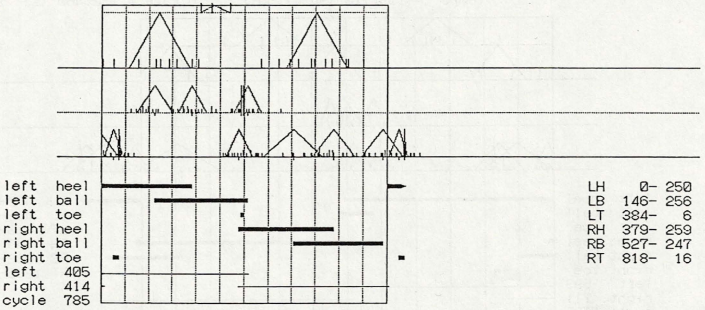
LH-47.389(0.000)- 60.413(+43.834)% RH 0.000(-25.825)-129.948(+44.189)%
LB 44.971(-53.444)-119.600(+24.796)% RB 83.591(-69.321)-177.144(+28.711)%
LT141.393(0.000)-142.166(+0.000)% RT212.269(-54.112)-216.634(+2.805)%

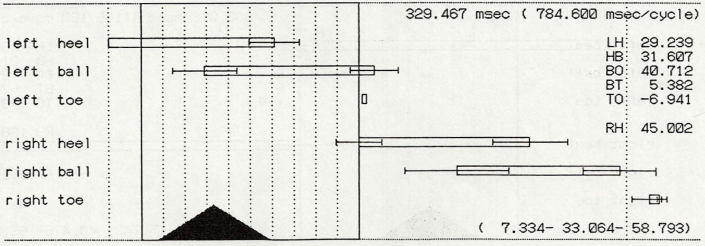


(A) heart rhythm (B) walking cycle

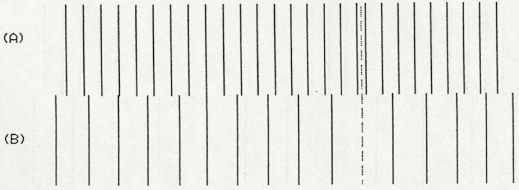
手つなぎ歩行　　(T. EJI, 10:11. m.)

[B:ETAKC61]　case = 8　mode = 6　m sec= 1　synchro=0　cycle = 15
no touch / cycle (LH-B-T)=(0 0 14), (RH-B-T)=(0 0 8)
tempo = 152.944 (sd 8.115)　h.rate = 138.045 (sd 4.125)





LH-14.994(0.000)- 60.846(+11.579)%　RH 0.000(-10.632)- 78.652(+17.184)%
LB 29.239(-14.587)-106.941(+11.138)%　RB 45.002(-24.178)-119.911(+16.831)%
LT101.558(0.000)-103.379(+0.000)%　RT133.416(-7.887)-138.143(+0.941)%

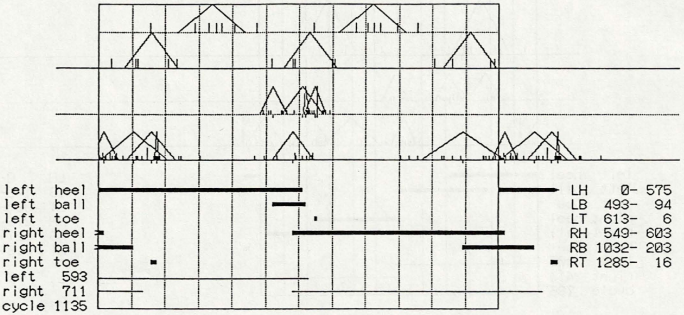


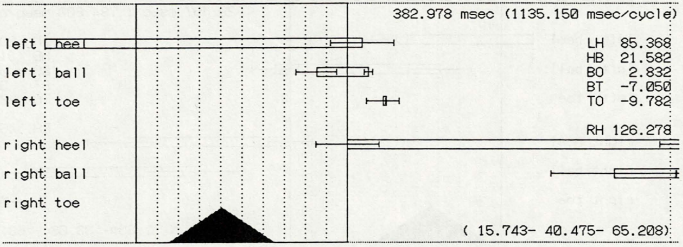
(A) heart rhythm　(B) walking cycle

亜鈴保持歩行(2kg) (T. EJI. 10:11. m.)

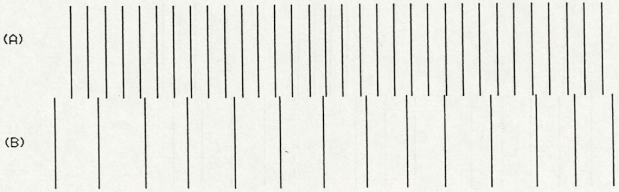
[B:ETAKC82]

case = 8 mode = 8 m sec= 1 synchro=0 cycle = 13
no touch / cycle (LH-B-T)=(0 11 11), (RH-B-T)=(0 0 6)
tempo = 105.713 (sd 7.691) h.rate = 132.460 (sd 1.867)





LH-43.230(0.000)-106.950(+14.988)% RH 0.000(-15.084)-157.450(+9.550)%
LB 85.368(-9.786)-109.782(+2.031)% RB126.278(-29.949)-179.303(+23.821)%
LT116.832(-7.755)-118.268(+0.185)% RT192.187(-17.700)-196.402(+1.473)%

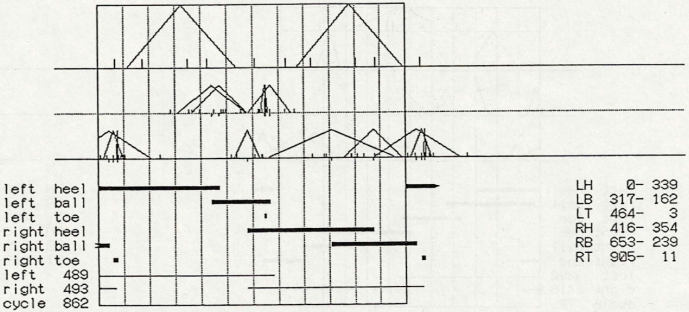


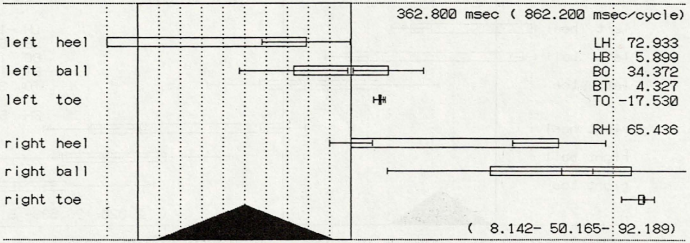
(A) heart rhythm (B) walking cycle

同期テンポ＝１２０ (T. EJI. 10:11. m.)

[B:ETAKC31]

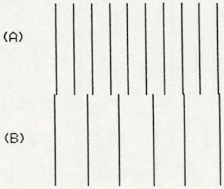
case = 8 mode = 3 m sec= 1 synchro=0 cycle = 5
no touch / cycle (LH-B-T)=(0 0 3), (RH-B-T)=(0 0 3)
tempo = 139.179 (sd 8.601) h.rate = 127.569 (sd 1.272)





LH-14.554(0.000)- 78.831(+20.607)%
LB 72.933(-25.551)-117.530(+16.285)%
LT113.203(-2.924)-114.030(+0.780)%

RH 0.000(-9.770)- 97.630(+21.779)%
RB 65.436(-48.231)-131.257(+32.496)%
RT134.757(-7.601)-137.652(+0.585)%

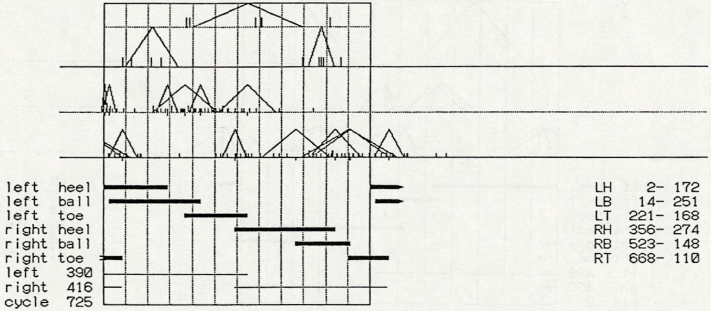


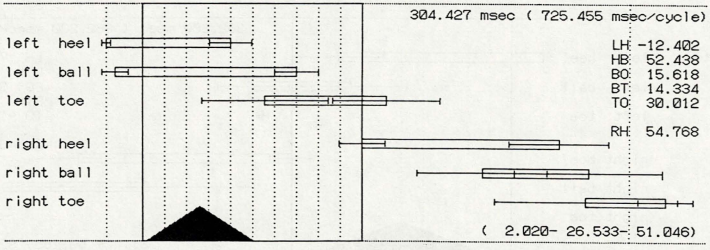
(A) heart rhythm (B) walking cycle

PREFER (M. SAN. 7:08. f.)

[B:SMAIC61]

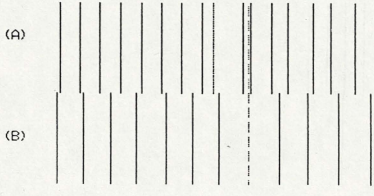
case = 6 mode = 6 m sec= 1 synchro=0 cycle = 11
no touch / cycle (LH-B-T)=(0 0 0), (RH-B-T)=(0 2 1)
tempo = 165.414 (sd 13.574) h.rate = 110.874 (sd 16.965)





LH-16.433(-2.166)- 40.036(+9.421)%
LB-12.402(-5.901)- 69.988(+10.077)%
LT 55.654(-28.797)-110.959(+24.582)%

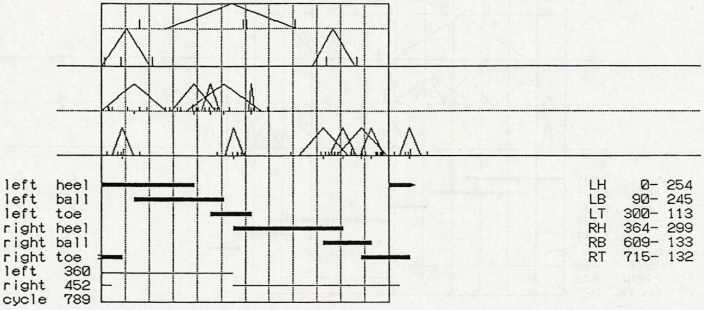
RH -0.000(-10.410)- 89.856(+22.800)%
RB 54.768(-29.675)-103.383(+33.743)%
RT102.234(-41.844)-138.301(+12.550)%

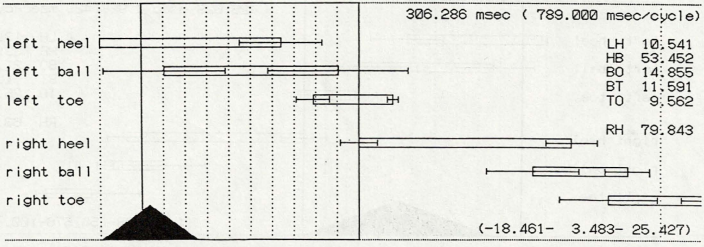


(A) heart rhythm (B) walking cycle

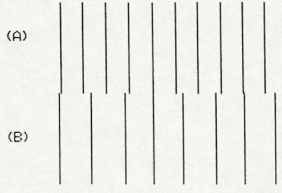
手つなぎ歩行　　(M. SAN, 7:08. f.)

[B:SMAIC31]　case = 6　mode = 3　m sec= 1　synchro=0　cycle = 7
no touch / cycle　(LH-B-T)=(0　0　5),　(RH-B-T)=(0　1　1)
tempo　= 152.091 (sd 10.315)　h.rate = 103.428 (sd　3.563)





LH-18.937(　0.000)- 63.993(+19.118)%　RH　0.000(-8.440)- 97.715(+11.824)%
LB 10.541(-28.037)- 90.438(+32.226)%　RB 79.843(-21.224)-123.321(+10.309)%
LT 78.848(-7.619)-115.578(+2.540)%　RT114.614(-22.398)-157.603(+9.536)%

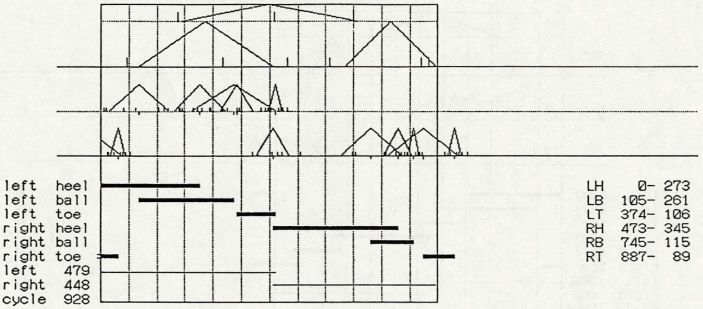


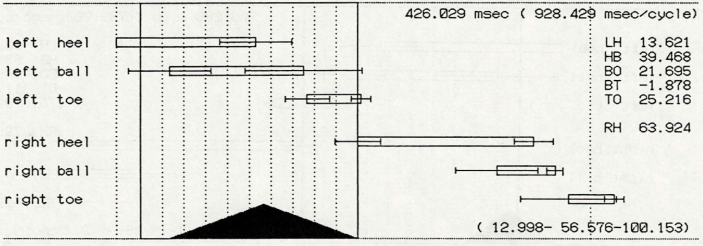
(A) heart　rhythm　　(B) walking cycle

同期テンポ=120 (M. SAN. 7:08. f.)

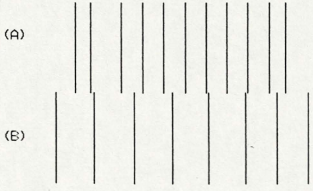
[B:SMAIC71]

case = 6 mode = 7 m sec= 1 synchro=0 cycle = 7
no touch / cycle (LH-B-T)=(0 0 0), (RH-B-T)=(0 4 2)
tempo = 129.251 (sd 11.288) h.rate = 111.255 (sd 20.844)





LH-11.025(0.000)- 53.088(+16.384)% RH 0.000(-10.376)- 80.880(+8.919)%
LB 13.621(-19.119)- 74.784(+26.990)% RB 63.924(-19.058)- 90.917(+3.689)%
LT 76.662(-10.212)-101.509(+4.276)% RT 97.083(-22.152)-117.926(+4.402)%

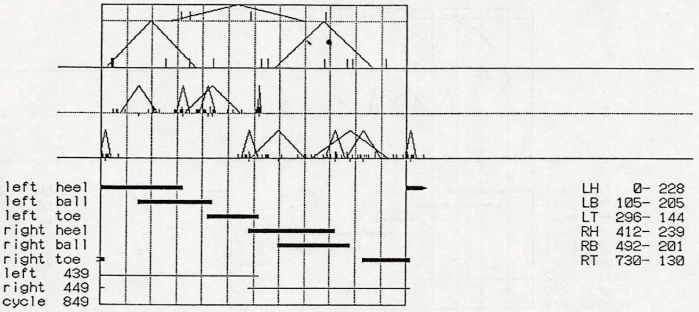


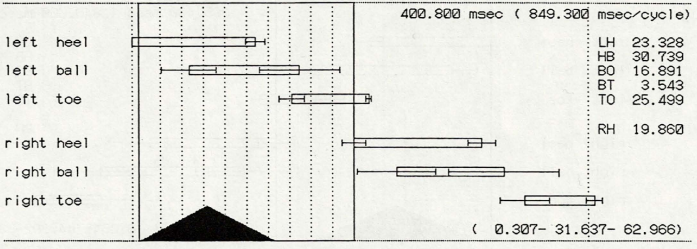
(A) heart rhythm (B) walking cycle

PREFER (Y. TAK. 8:00. m.)

[B:TUSEC11]

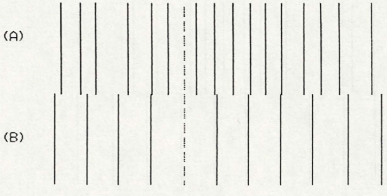
case = 5 mode = 1 m sec= 1 synchro=0 cycle = 10
no touch / cycle (LH-B-T)=(0 0 0), (RH-B-T)=(0 0 0)
tempo = 141.293 (sd 5.881) h.rate = 114.473 (sd 33.200)





LH -2.794(0.000)- 54.067(+4.682)%
LB 23.328(-12.901)- 74.501(+18.751)%
LT 70.958(-5.827)-106.836(+1.271)%

RH 0.000(-5.398)- 59.581(+6.603)%
RB 19.860(-18.385)- 69.885(+25.705)%
RT 79.391(-11.447)-111.901(+3.828)%

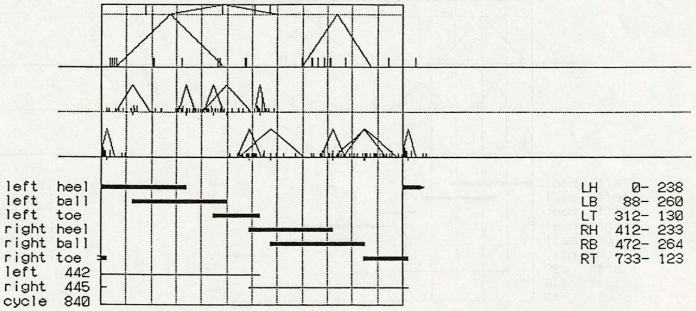


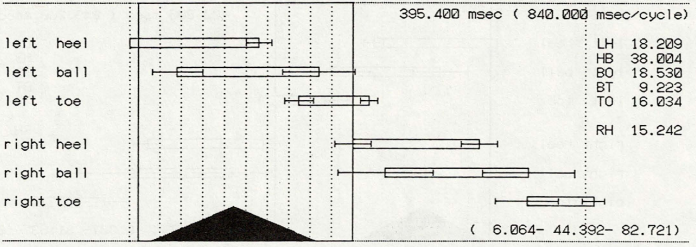
(A) heart rhythm (B) walking cycle

TOO FAST (Y. TAK. 8:00. m.)

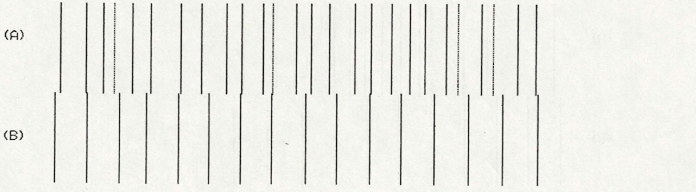
[B:TUSEC22]

case = 5 mode = 2 m sec= 1 synchro=0 cycle = 15
no touch / cycle (LH-B-T)=(0 0 0), (RH-B-T)=(0 0 0)
tempo = 142.857 (sd 9.850) h.rate = 111.950 (sd 21.348)





LH -4.097(0.000)- 56.213(+5.969)% RH 0.000(-8.454)- 59.046(+8.514)%
LB 18.209(-11.826)- 83.966(+16.919)% RB 15.242(-22.306)- 82.060(+21.529)%
LT 74.743(-6.731)-107.570(+4.012)% RT 81.251(-14.634)-112.443(+5.223)%

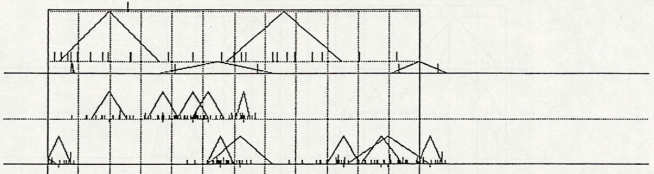


(A) heart rhythm (B) walking cycle

TOO SLOW (Y. TAK. 8:00. m.)

[B:TUSEC31]

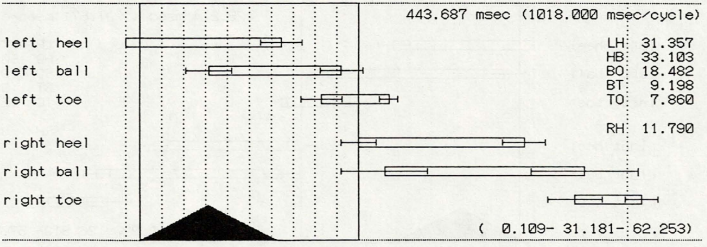
case = 5 mode = 3 m sec= 1 synchro=0 cycle = 16
no touch / cycle (LH-B-T)=(0 0 0), (RH-B-T)=(0 0 0)
tempo = 117.878 (sd 7.374) h.rate = 117.212 (sd 16.426)



left heel
left ball
left toe
right heel
right ball
right toe
left 533
right 575
cycle 1018

LH 0- 315
LB 168- 270
LT 397- 137
RH 472- 337
RB 525- 407
RT 912- 134

443.687 msec (1018.000 msec/cycle)



left heel
left ball
left toe
right heel
right ball
right toe

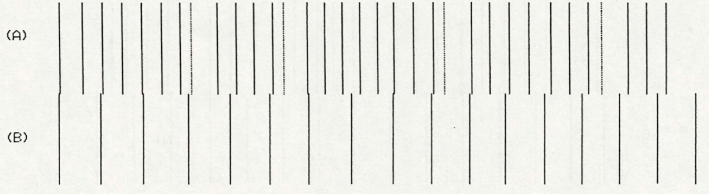
LH: 31.357
HB: 33.103
BO: 18.482
BT: 9.198
TO: 7.860

RH: 11.790

(0.109- 31.181- 62.253)

LH -6.423(0.000)- 64.460(+9.426)%
LB 31.357(-10.594)- 92.140(+9.868)%
LT 82.941(-9.425)-113.791(+4.417)%

RH 0.000(-8.108)- 75.856(+9.762)%
RB 11.790(-19.649)-103.479(+24.551)%
RT 99.169(-12.491)-129.441(+7.503)%



(A)

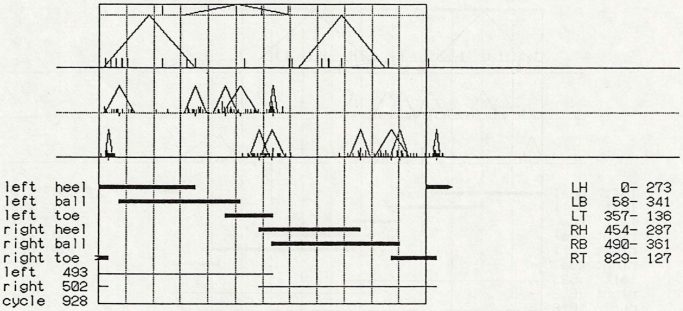
(B)

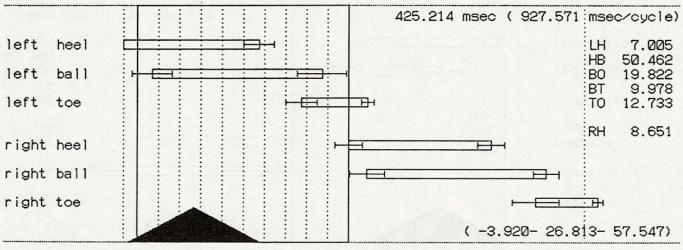
(A) heart rhythm (B) walking cycle

同期テンポ＝１２０ (Y. TAK. 8:00. m.)

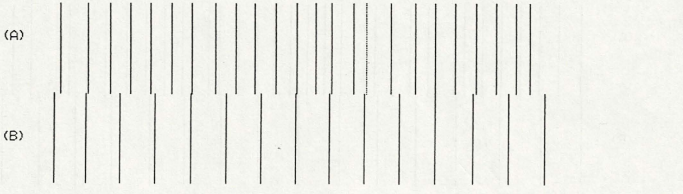
[B:TUSEC42]

case = 5 mode = 4 m sec= 1 synchro=0 cycle = 14
no touch / cycle (LH-B-T)=(0 0 0), (RH-B-T)=(0 0 0)
tempo = 129.370 (sd 5.632) h.rate = 109.317 (sd 14.633)





LH -6.652(0.000)- 57.467(+7.262)% RH 0.000(-6.387)- 67.411(+6.568)%
LB 7.005(-9.533)- 87.267(+11.541)% RB 8.651(-8.122)- 93.516(+6.028)%
LT 77.289(-7.528)-109.205(+2.958)% RT 88.325(-11.049)-118.142(+2.567)%

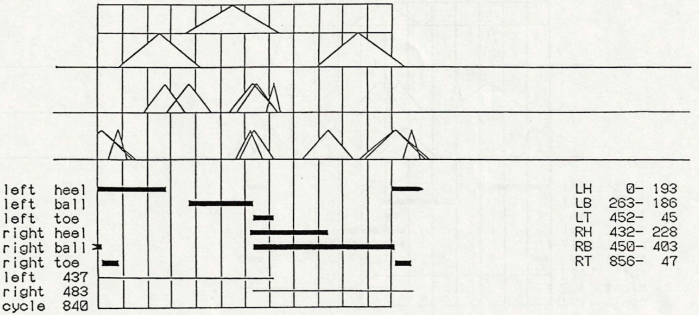


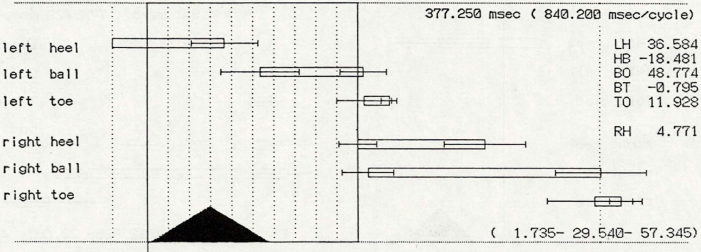
(A) heart rhythm (B) walking cycle

PREFER (N. FUK. 8:02. m.)

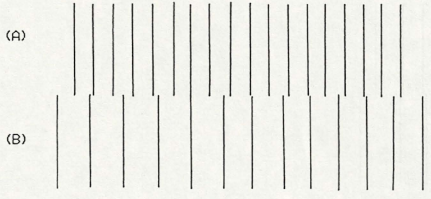
[B:FNORC12]

case = 4 mode = 1 m sec= 1 synchro=0 cycle = 12
no touch / cycle (LH-B-T)=(0 0 0), (RH-B-T)=(2 0 0)
tempo = 142.833 (sd 13.576) h.rate = 111.222 (sd 4.096)





LH-16.670(0.000)- 36.584(+15.691)% RH 0.000(-9.220)- 60.437(+19.577)%
LB 53.545(-18.529)-102.319(+10.959)% RB 4.771(-12.067)-115.597(+21.429)%
LT103.015(-13.139)-114.943(+3.761)% RT112.392(-22.487)-124.851(+5.543)%

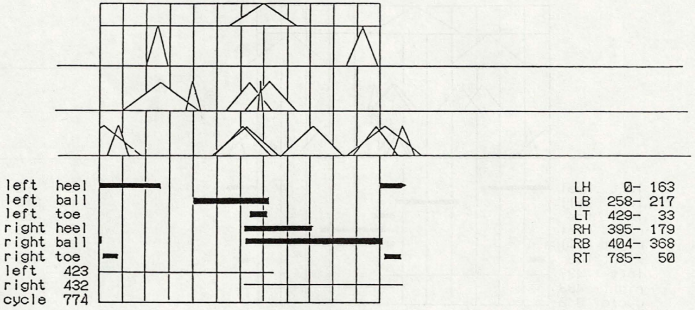


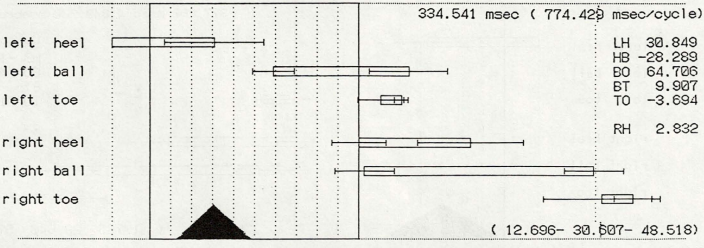
(A) heart rhythm (B) walking cycle

同期テンポ＝１２０ (N. FUK. 8:02. m.)

[B:FNORC41]

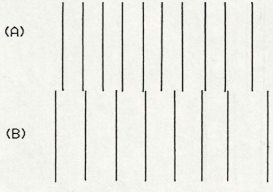
case = 4 mode = 4 m sec= 1 synchro=0 cycle = 7
no touch / cycle (LH-B-T)=(0 0 0), (RH-B-T)=(1 0 0)
tempo = 154.355 (sd 8.263) h.rate = 104.348 (sd 5.370)





LH-17.892(0.000)- 30.849(+23.692)%
LB 59.138(-9.950)-123.844(+18.621)%
LT110.344(-10.935)-120.251(+3.151)%

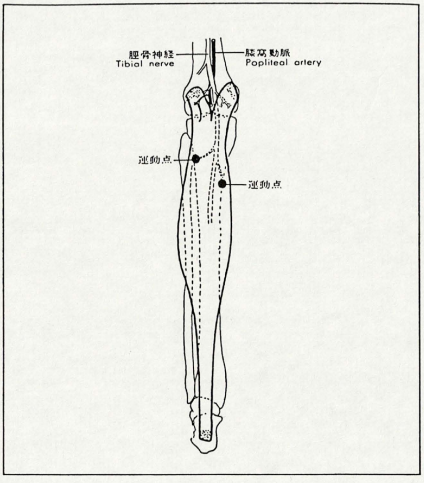
RH 0.000(-13.084)- 53.506(+25.337)%
RB 2.690(-14.091)-112.692(+14.193)%
RT116.578(-27.947)-131.523(+9.213)%



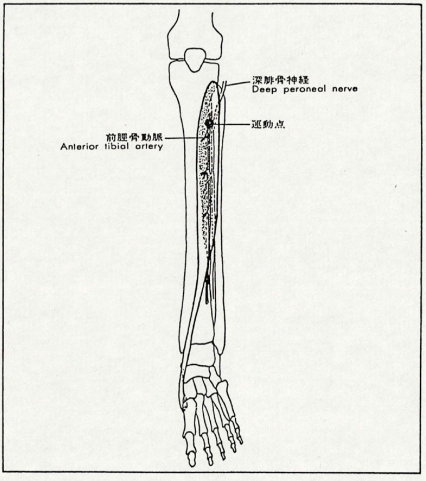
(A) heart rhythm (B) walking cycle

B.　跳躍動作の筋電図学的解析

腓腹筋 Gastrocnemius

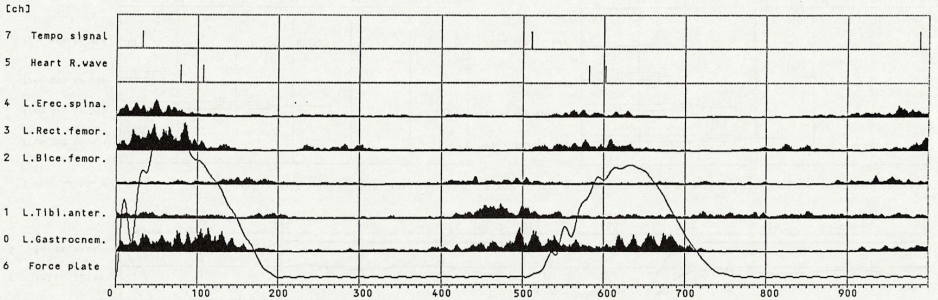


前脛骨筋 Tibialis anterior

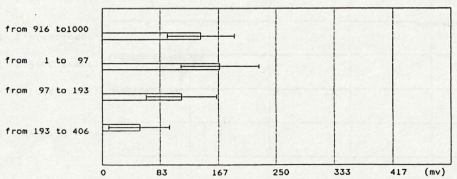


アクセント同期＝１１５（K.FUJ.12:02.m.）

[KC1]　meen=1047.000(sd 67.882)msec.　tempo=114.613(sd 7.431)　heart rate=115.570(sd 0.959)　[2]

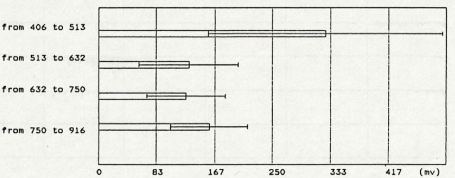


[KC1 12:02. m]　E.M.G data L.Tibi.anter. (cycl 1047.000 msec)



total	meen	sd
12026.700	141.491	48.431
16422.100	169.300	56.758
11010.200	113.507	50.339
11237.300	52.511	43.734

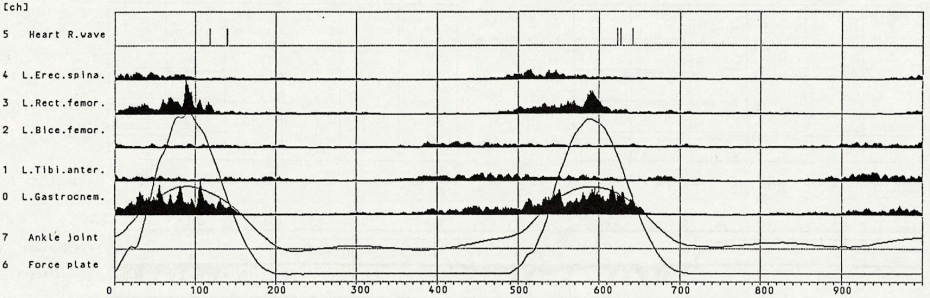
[KC1 12:02. m]　E.M.G data L.Tibi.anter. (cycl 1047.000 msec)



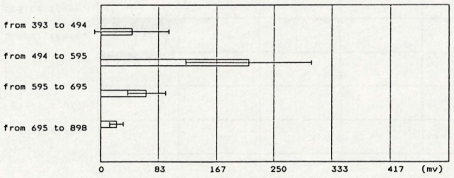
total	meen	sd
35243.300	326.327	169.172
15542.500	129.520	71.704
14928.700	125.451	56.872
26472.500	158.518	55.186

PREFER (K.FUJ.12:02.m.)

[KA2] meen=1052.000(sd 18.520)msec. tempo=114.068(sd 2.008) heart rate=114.569(sd 0.183) [3]

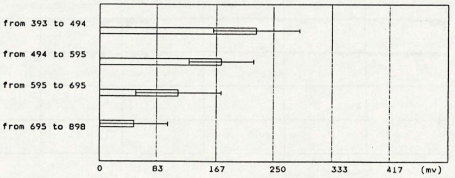


[KA2 12:02. m] E.M.G data L.Erec.spina. (cycl 1052.000 msec)



	total	meen	sd
from 393 to 494	4533.170	44.443	53.337
from 494 to 595	21763.700	213.370	90.460
from 595 to 695	6611.730	65.463	27.490
from 695 to 898	4502.880	22.073	9.996

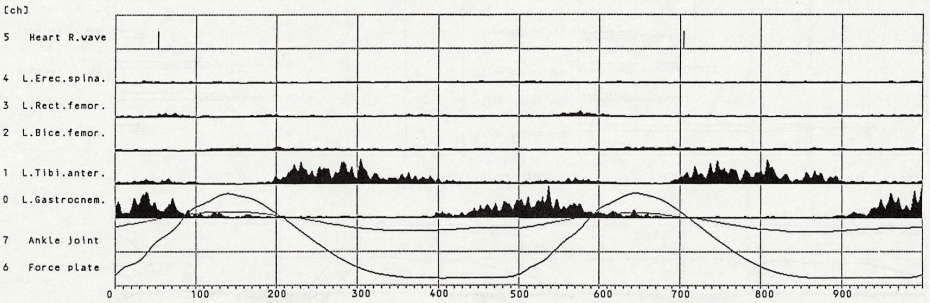
[KA2 12:02. m] E.M.G data L.Tibi.anter. (cycl 1052.000 msec)



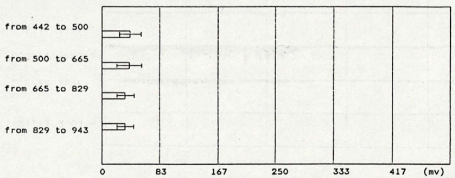
	total	meen	sd
from 393 to 494	22948.400	224.984	62.091
from 494 to 595	17768.000	174.196	46.642
from 595 to 695	11382.800	112.701	61.078
from 695 to 898	10158.000	49.794	48.944

TOO FAST (K.FUJ.12:02.m.)

[KA3] meen= 481.333(sd 2.082)msec. tempo=249.307(sd 1.078) heart rate= 92.664 [3]

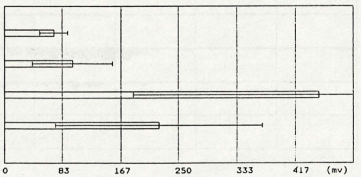


[KA3 12:02. m] E.M.G data L.Erec.spina (cycl 481.333 msec)



	total	meen	sd
from 442 to 500	2372.090	40.205	15.645
from 500 to 665	6493.270	39.116	18.149
from 665 to 829	5519.000	33.449	12.629
from 829 to 943	3786.550	32.927	12.036

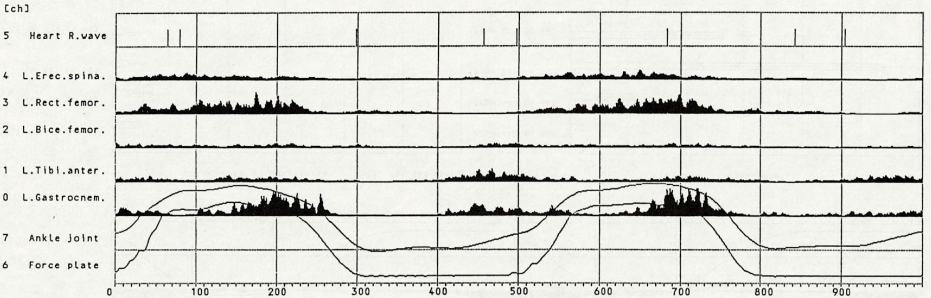
[KA3 12:02. m] E.M.G data L.Tibi.anter. (cycl 481.333 msec)



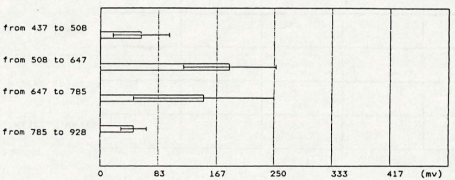
	total	meen	sd
from 442 to 500	4174.380	70.752	19.971
from 500 to 665	16237.900	97.818	57.605
from 665 to 829	74424.000	451.055	266.467
from 829 to 943	25482.400	221.586	148.476

TOO SLOW (K.FUJ.12:02.m.)

[KA4] meen=1400.670(sd 12.097)msec. tempo= 85.674(sd 0.740) heart rate=107.692(sd 4.275) [3]

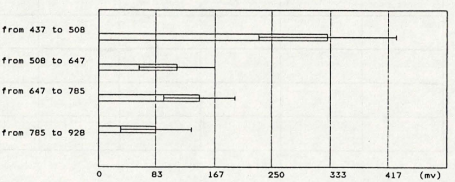


[KA4 12:02. m] E.M.G data L.Erec.spina. (cycl 1400.670 msec)



total	meen	sd
4205.560	58.411	40.871
25964.500	185.461	66.061
20597.400	148.183	101.451
6824.520	47.393	18.889

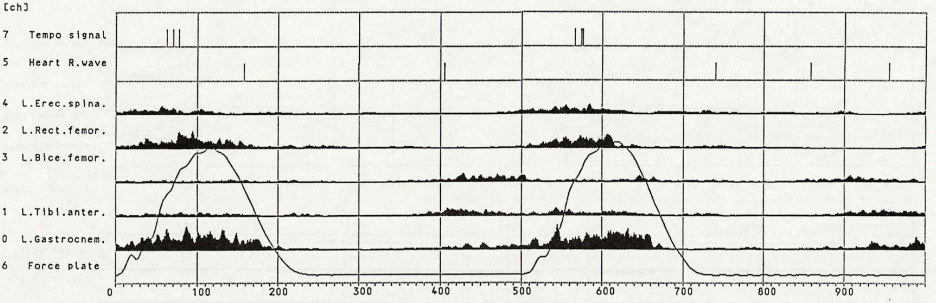
[KA4 12:02. m] E.M.G data L.Tibi.anter. (cycl 1400.670 msec)



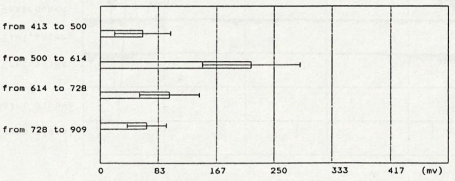
total	meen	sd
23720.900	329.458	98.527
15793.900	112.814	54.199
20205.400	145.363	50.879
11918.600	82.768	50.302

同期テンポ=115 (K.FUJ.12:02.m.)

[KB1] meen=1040.830(sd 5.774)msec. tempo=115.292(sd 0.640) heart rate=103.040(sd 2.228) [3]

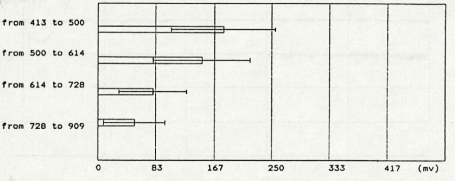


[KB1 12:02. m] E.M.G data L.Erec.anter. (cycl 1040.830 msec)



total	meen	sd
5256.700	59.735	40.100
24996.600	217.361	70.030
11418.700	99.294	43.133
11958.000	65.703	28.074

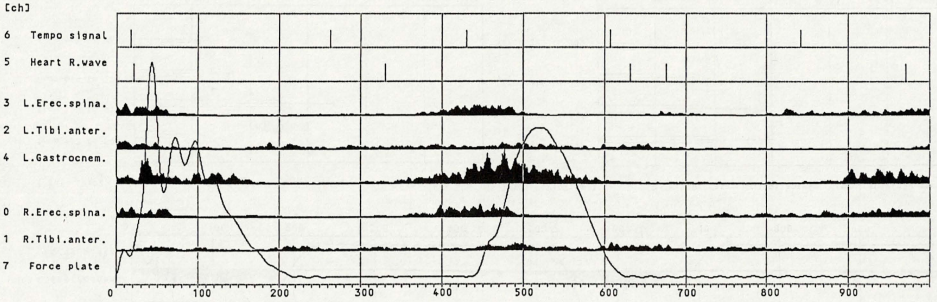
[KB1 12:02. m] E.M.G data L.Tibi.antetr. (cycl 1040.830 msec)



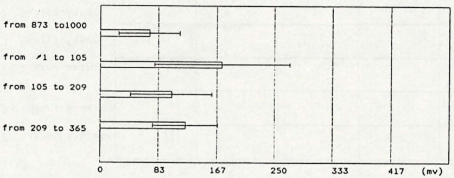
total	meen	sd
15857.600	180.200	75.229
17097.900	148.678	69.920
9041.410	78.621	48.751
9473.520	52.052	43.992

アクセント同期＝１２０ (C. MUR. 10:10. m.)

[MC7] meen= 832.667(sd 5.132)msec. tempo=144.115(sd 0.888) heart rate=110.294(sd 1.290) [3]

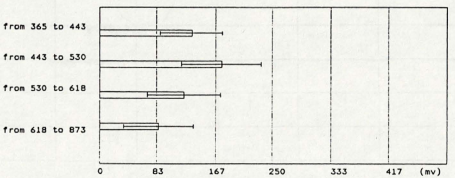


[MC7 10:10. m] E.M.G data L.Tibi.anter. (cycl 832.667 msec)



total	meen	sd
8976.220	70.127	43.829
18301.900	174.304	97.740
10659.300	101.517	58.840
19115.900	121.757	46.458

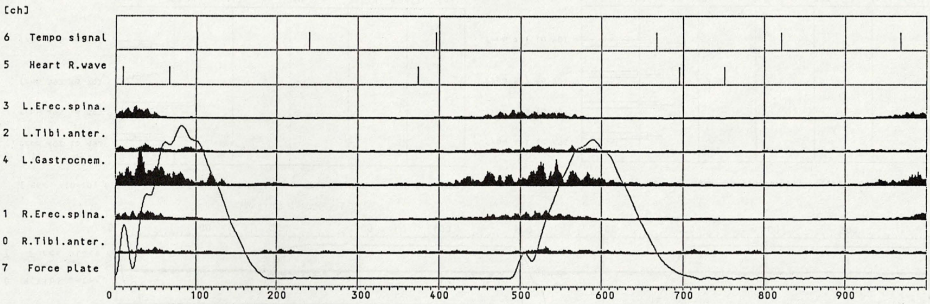
[MC7 10:10. m] E.M.G data L.Tibi.anter. (cycl 832.667 msec)

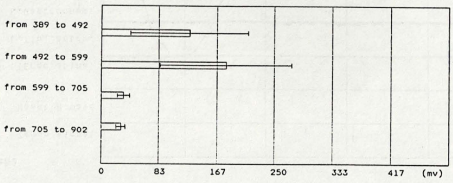


total	meen	sd
10483.200	132.699	44.735
15473.900	175.840	57.762
10820.000	121.573	52.923
21759.400	84.998	49.971

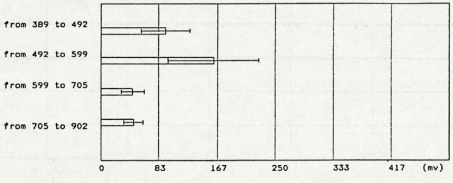
PREFER (C.MUR.10:10.m.)

[MC6] meen= 852.667(sd 10.214)msec. tempo=140.735(sd 1.686) heart rate=102.696(sd 0.920) [3]





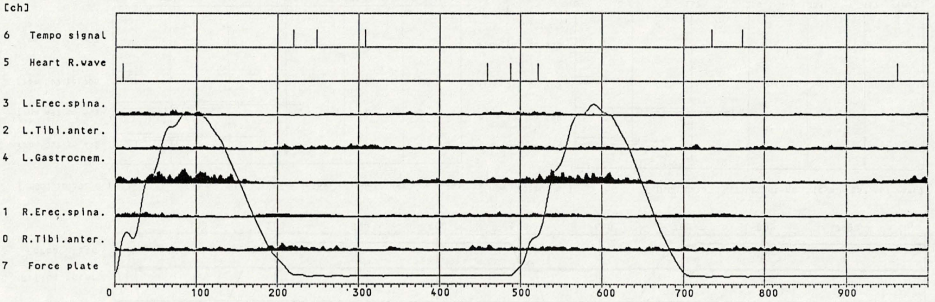
total	meen	sd
13242.700	127.334	84.974
19387.500	179.514	95.499
3438.590	32.136	8.775
5539.290	27.976	7.036



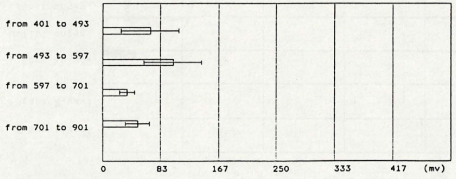
total	meen	sd
9619.820	92.498	34.443
17465.000	161.713	65.607
4839.720	45.231	16.527
9270.600	46.821	13.417

PREFER (M. SAW. 10:10. f.)

[SC4] meen= 880.667(sd 21.127)msec. tempo=136.260(sd 3.269) heart rate=132.377(sd 1.383) [3]

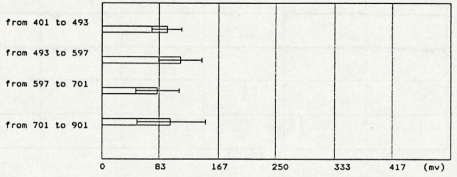


[SC4 =10:10. f] E.M.G data L.Erec.spina. (cycl 880.667 msec)



total	meen	sd
6297.270	67.713	41.527
10563.400	100.604	41.382
3643.310	34.698	10.221
9952.280	49.514	17.940

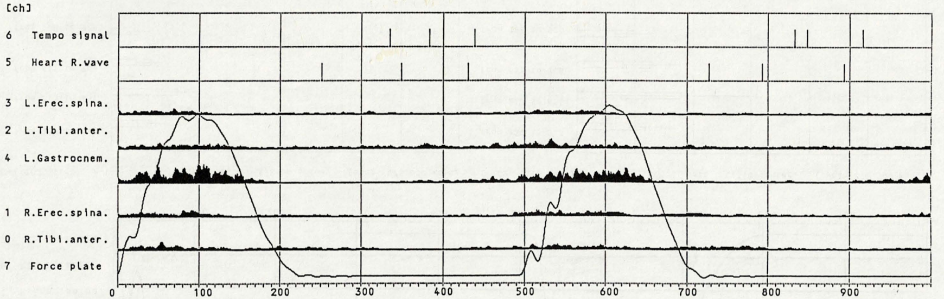
[SC4 10:10. f] E.M.G data L.Tibi.anter. (cycl 880.667 msec)



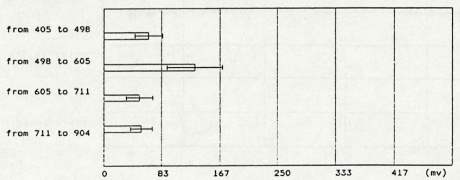
total	meen	sd
8705.340	93.606	21.383
11820.000	112.571	30.507
8371.890	79.732	30.851
19958.900	99.298	48.234

同期テンポ＝１２０　(M.SAW,10:10.f.)

[SC1]　meen=1022.000(sd 35.384)msec.　tempo=117.417(sd 4.065)　heart rate=127.416(sd 1.341)　[3]

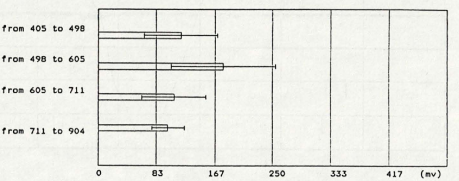


[SC1 10:10. f]　E.M.G data　L.Erec.spina.　(cycl 1022.000 msec)



total	meen	sd
6019.450	64.037	19.658
14154.900	131.064	40.181
5413.590	50.594	19.076
10312.900	53.159	15.346

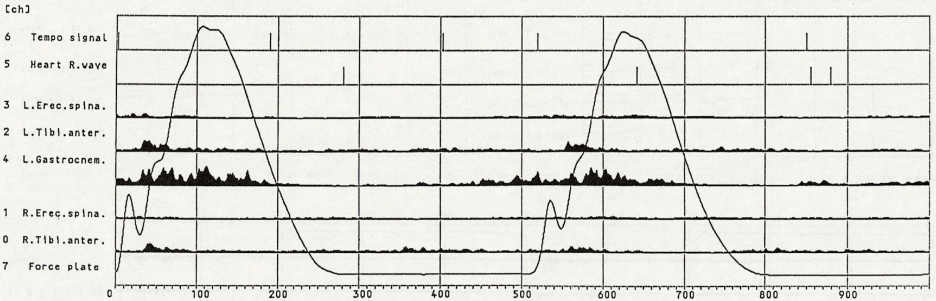
[SC1 10:10. f]　E.M.G data　L.Tibi.anter.　(cycl 1022.000 msec)



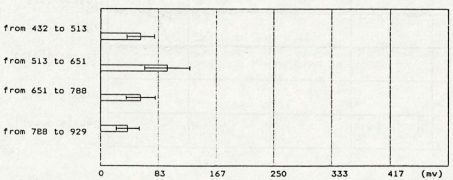
total	meen	sd
11132.900	118.435	52.599
19308.400	178.781	74.899
11554.100	107.983	45.668
19292.800	99.447	23.584

PREFER (T. TAN. 11:07. m.)

[TC2] meen= 769.333(sd 26.764)msec. tempo=155.979(sd 5.426) heart rate= 90.978(sd 5.979) [3]

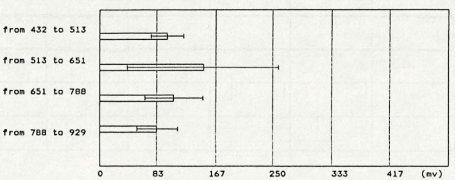


[TC2 11:07. m] E.M.G data L.Erec.spina. (cycl 871.000 msec)



	total	meen	sd
from 432 to 513	4663.080	56.867	20.125
from 513 to 651	13349.500	96.040	32.799
from 651 to 788	7861.920	56.970	20.971
from 788 to 929	5464.620	38.483	16.073

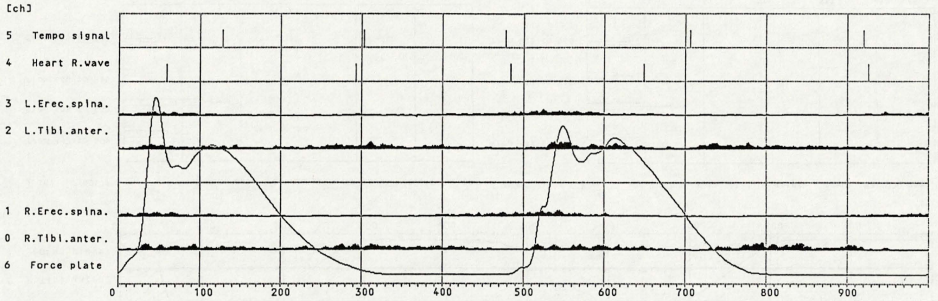
[TC2 11:07. m] E.M.G data L.Tibi.anter. (cycl 871.000 msec)



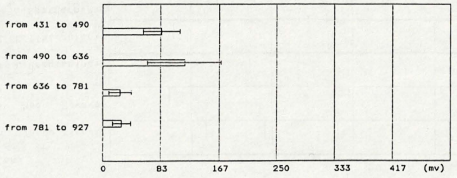
	total	meen	sd
from 432 to 513	8056.930	98.255	22.978
from 513 to 651	20682.300	148.794	108.814
from 651 to 788	14817.100	107.370	41.038
from 788 to 929	11813.000	83.190	29.323

PREFER (T.EJI,10:11.m.)

[EC2 10:11 m] meen= 845.333(sd 48.604)msec. tempo=141.956(sd 8.162) heart rate=119.704(sd 4.105) [3]

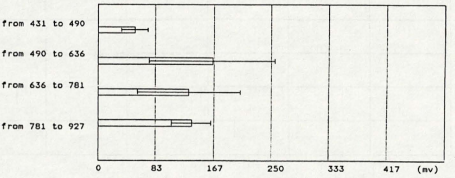


[EC2 10:11. m] E.M.G data L.Erec.spina. (cycl 845.333 msec)



	total	meen	sd
from 431 to 490	5022.800	83.713	26.177
from 490 to 636	17232.700	117.230	52.741
from 636 to 781	3648.580	24.990	16.136
from 781 to 927	3924.830	26.700	13.151

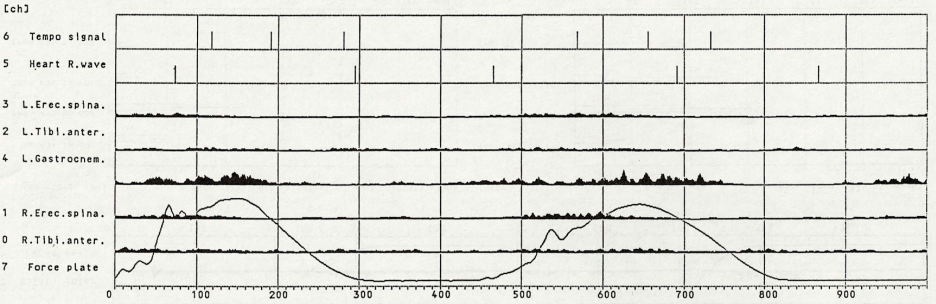
[EC2 10:11. m] E.M.G data L.Tibi.anter. (cycl 845.333 msec)



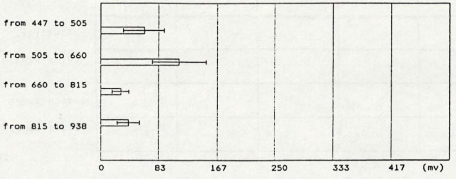
	total	meen	sd
from 431 to 490	3153.530	52.559	19.030
from 490 to 636	24185.600	164.528	90.298
from 636 to 781	19131.800	131.039	74.080
from 781 to 927	19816.500	134.806	28.386

PREFER (M. SAN. 7:08. f.)

[ZC2] meen= 921.000(sd 16.523)msec. tempo=130.293(sd 2.337) heart rate=108.892(sd 2.638) [3]

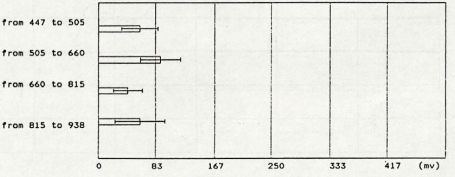


[ZC2 7:08. f] E.M.G data L.Erec.spina. (cycl 921.000 msec)



	total	meen	sd
from 447 to 505	3643.770	61.759	29.339
from 505 to 660	17549.600	112.497	38.109
from 660 to 815	4348.900	27.878	11.854
from 815 to 938	4844.690	39.070	15.754

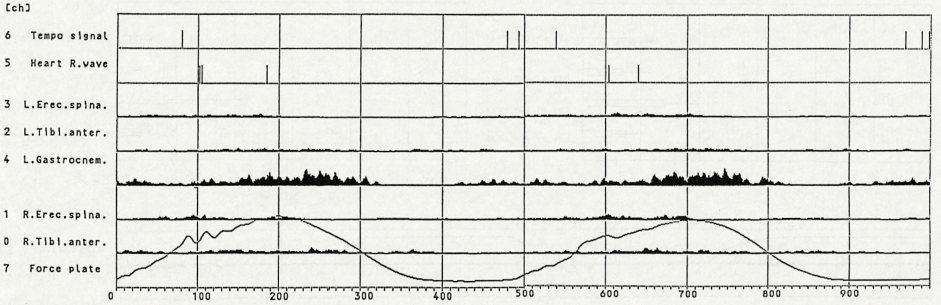
[ZC2 7:08. f] E.M.G data L.Tibi.anter. (cycl 921.000 msec)



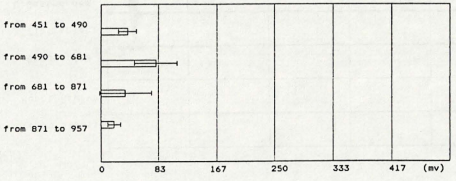
	total	meen	sd
from 447 to 505	3550.220	60.173	25.999
from 505 to 660	14028.000	89.923	28.549
from 660 to 815	6697.120	42.930	20.882
from 815 to 938	7412.400	59.777	36.077

同期テンポ＝１２０　(M. SAN. 7:08. f.)

[ZC1]　meen=1017.670(sd 42.218)msec.　tempo=117.917(sd 4.892)　heart rate=121.951(sd 1.702)　[3]

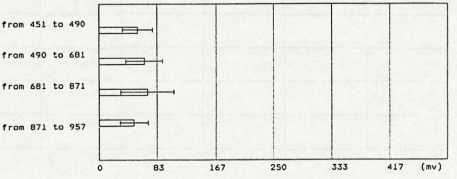


[ZC1 7:08. f]　E.M.G data L.Erec.spina. (cycl 1017.670 msec)



total	meen	sd
1522.770	38.069	13.327
15112.400	78.710	30.665
6747.740	35.329	37.485
1638.000	18.828	8.738

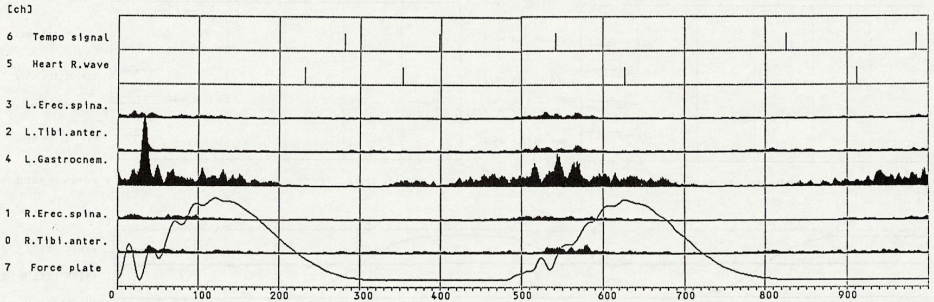
[ZC1 7:08. f]　E.M.G data L.Tibi.anter. (cycl 1017.670 msec)



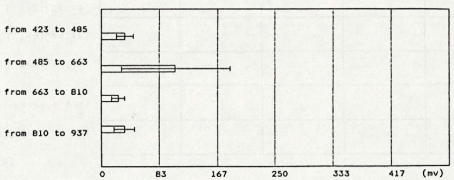
total	meen	sd
2199.200	54.980	21.418
12436.700	64.775	26.332
13096.200	68.567	37.987
4366.160	50.186	19.905

PREFER (Y.TAK. 8:00.m.)

[YC4] meen= 748.333(sd 29.263)msec. tempo=160.356(sd 6.271) heart rate=110.667(sd 4.552) [3]

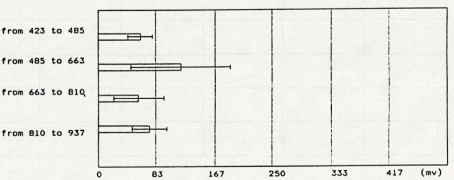


[YC4 8:00 m] E.M.G data L.Erec.spina. (cycl 748.333 msec)



	total	meen	sd
from 423 to 485	2080.630	33.026	12.425
from 485 to 663	19035.900	106.346	78.375
from 663 to 810	3480.140	23.515	9.436
from 810 to 937	4173.820	32.608	14.161

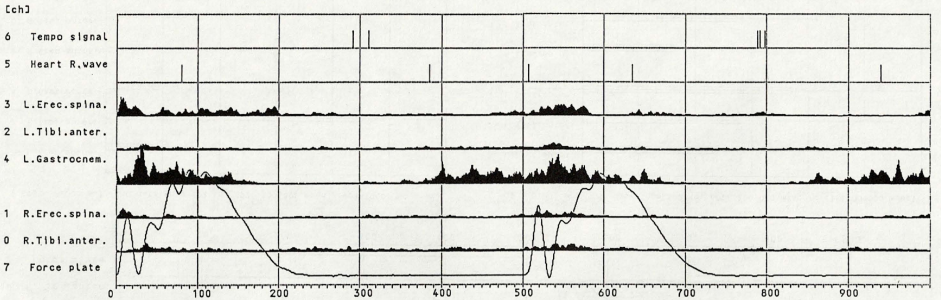
[YC4 8:00 m] E.M.G data L.Tibi.anter. (cycl 748.333 msec)



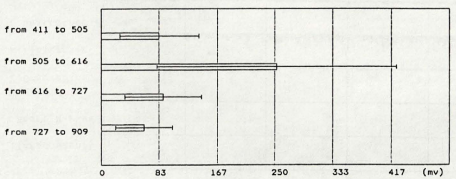
	total	meen	sd
from 423 to 485	3824.480	60.706	17.772
from 485 to 663	21063.800	117.675	70.837
from 663 to 810	8540.910	57.709	36.100
from 810 to 937	9445.140	73.790	24.845

同期テンポ＝１４０ (Y. TAK. 8:00. m.)

[YC5] meen= 849.333(sd 11.846)msec. tempo=141.287(sd 1.971) heart rate=125.786(sd 1.726) [3]

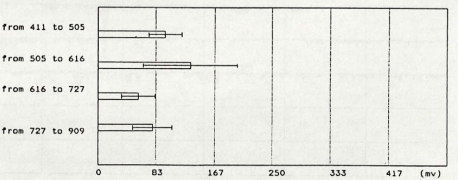


[YC5 8:00. m] E.M.G data L.Erec.spina. (cycl 849.333 msec)



total	meen	sd
7913.400	83.299	56.242
28270.800	252.418	172.004
9949.380	88.834	54.758
11162.000	60.994	41.334

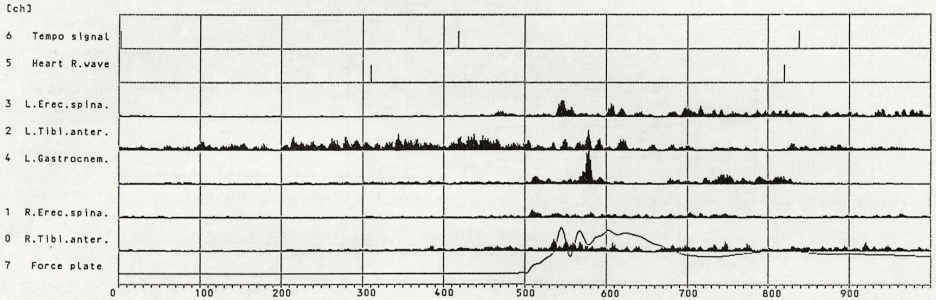
[YC5 8:00. m] E.M.G data L.Tibi.anter. (cycl 849.333 msec)



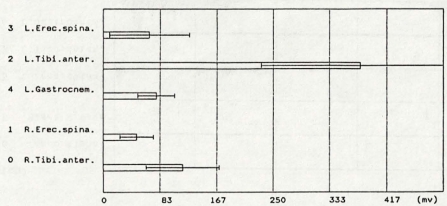
total	meen	sd
9162.550	96.448	23.563
14814.400	132.271	67.511
6476.820	57.829	23.854
14233.900	77.781	28.101

跳び降り (N.FUK. 8:02.m.)

[FC1] meen=1000.000 msec. heart rate=117.417 [1]

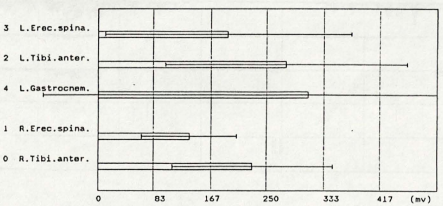


[FC1 8:00. m] EMG data from 402 to 502(100.000 msec /cycl 1000.000 msec)



ch	total	meen	sd
3	6803.140	67.358	58.547
2	38131.800	377.543	146.018
4	7784.670	77.076	26.988
1	4894.180	48.457	24.872
0	11748.600	116.323	54.718

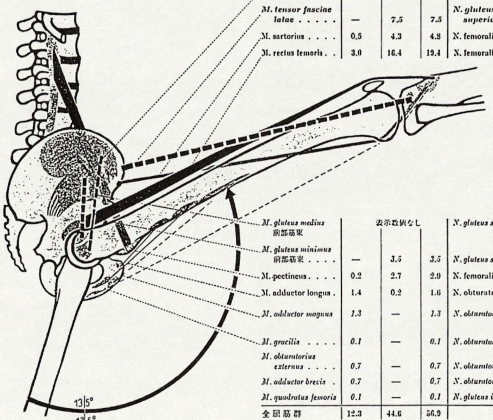
[FC1 8:00. m] EMG data from 502 to 602(100.000 msec /cycl 1000.000 msec)



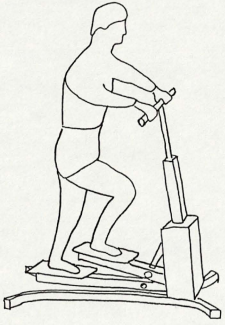
ch	total	meen	sd
3	19418.800	192.265	181.586
2	28092.000	278.138	178.503
4	31264.000	309.544	389.332
1	13623.400	134.885	69.784
0	23044.800	228.166	118.570

C. バイペダリズムの筋電図学的解析

股関節の屈曲



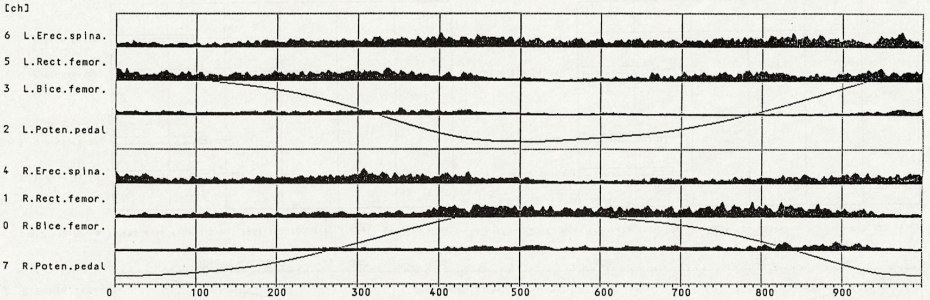
筋	作業能 (mkg) 伸展位 → 屈曲位	屈曲位 → 伸展位	合計	神経支配
M. iliopsoas	4.3	10.0	14.3	N. femoralis
M. tensor fasciae latae	—	7.5	7.5	N. gluteus superior
M. sartorius	0.5	4.3	4.8	N. femoralis
M. rectus femoris . .	3.0	16.4	19.4	N. femoralis
M. gluteus medius 前部筋束	表示数値なし			N. gluteus superior
M. gluteus minimus 前部筋束	—	3.5	3.5	N. gluteus superior
M. pectineus	0.2	2.7	2.9	N. femoralis
M. adductor longus .	1.4	0.2	1.6	N. obturatorius
M. adductor magnus	1.3	—	1.3	N. obturatorius
M. gracilis	0.1	—	0.1	N. obturatorius
M. obturatorius externus	0.7	—	0.7	N. obturatorius
M. adductor brevis .	0.7	—	0.7	N. obturatorius
M. quadratus femoris	0.1	—	0.1	N. gluteus inferior
全屈筋群	12.3	44.6	56.9	



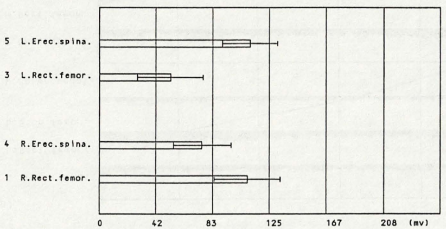
バイペダ

同期テンポ＝１８０　(K.FUJ.12:02.m.)

[KA2]　　meen= 669.000(sd 36.843)msec.　tempo=179.372(sd 9.878)　[8]　　heart rate=110.782(sd 2.637)

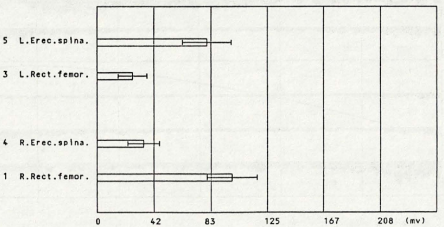


[KA2 12:02. m] EMG data from 375 to 500(83.625 msec / cycl 669.000 msec)



ch	total	meen	sd
5	13955.900	110.761	20.088
3	6591.260	52.312	24.253
4	9544.010	75.746	21.383
1	13704.700	108.768	24.309

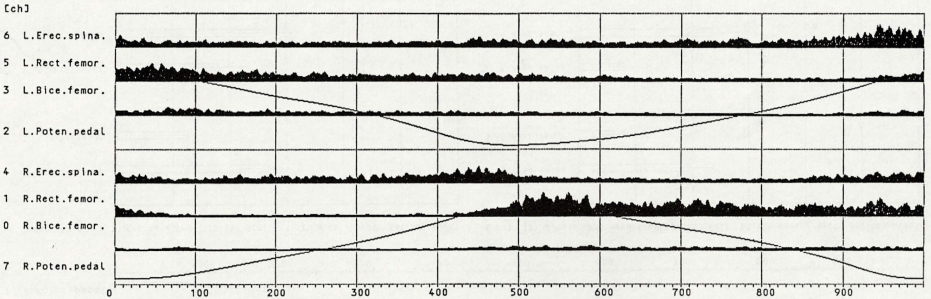
[KA2 12:02. m] EMG data from 500 to 625(83.625 msec / cycl 669.000 msec)



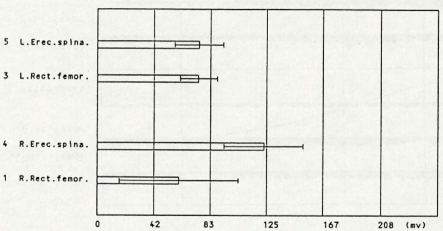
ch	total	meen	sd
5	10134.600	80.433	18.048
3	3272.140	25.969	10.434
4	4294.290	34.082	11.496
1	12481.700	99.062	18.342

同期テンポ＝１２０　(K. FUJ. 12:02. m.)

[KF2]　　meen= 993.625(sd 31.478)msec.　tempo=120.770(sd 3.826)　[8]　　heart rate= 97.970(sd 3.541)

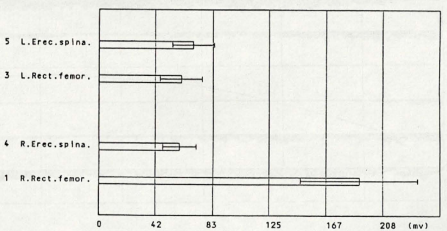


[KF2 12:02. m] EMG data from 375 to 500(124.203 msec / cycl 993.625 msec)



ch	total	meen	sd
5	9442.920	74.944	17.925
3	9416.600	74.735	13.776
4	15476.800	122.832	29.156
1	7554.170	59.954	44.117

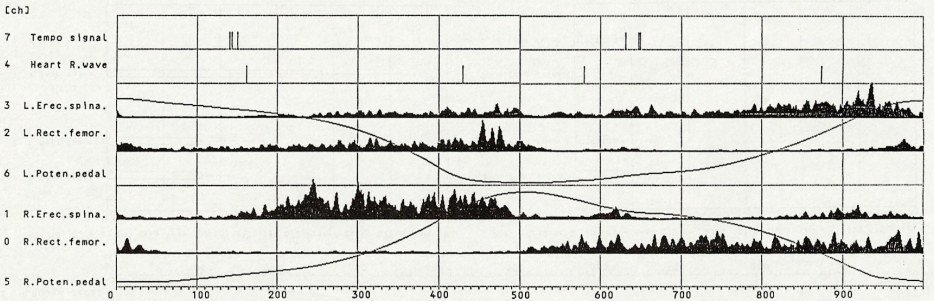
[KF2 12:02. m] EMG data from 500 to 625(124.203 msec / cycl 993.625 msec)



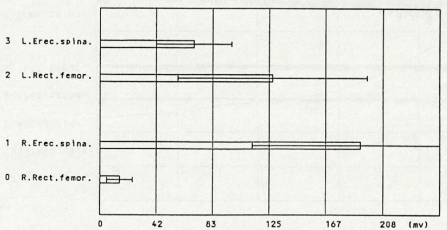
ch	total	meen	sd
5	8714.220	69.161	15.195
3	7611.200	60.406	15.330
4	7418.580	58.878	12.122
1	24072.700	191.053	43.046

誘発テンポ＝150 (C.MUR.10:10.m.)

[MA9] meen= 789.000(sd 12.124)msec. tempo=152.091(sd 2.337) [3] haert rate=106.053(sd 0.749)

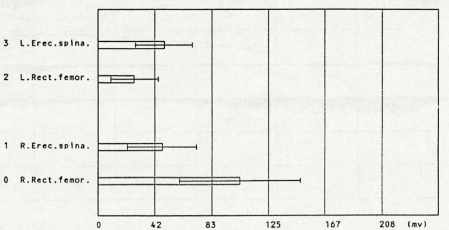


[MA9 10:10. m] EMG data from 381 to 508(100.203 msec / cycl 789.000 msec)



ch	total	meen	sd
3	8828.710	70.069	27.890
2	16134.900	128.055	69.874
1	24840.400	197.146	75.207
0	1681.140	13.342	7.353

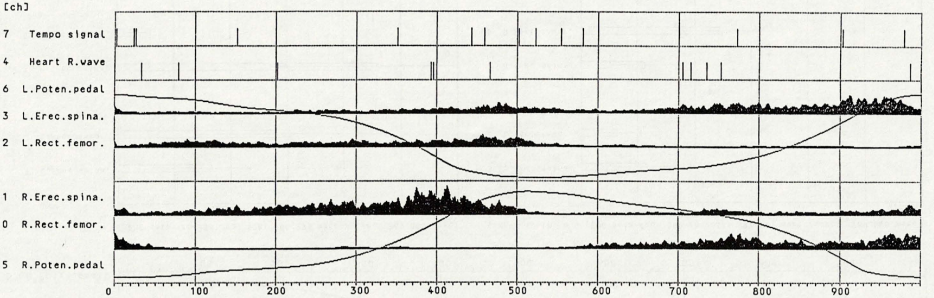
[MA9 10:10. m] EMG data from 508 to 631(97.047 msec / cycl 789.000 msec)



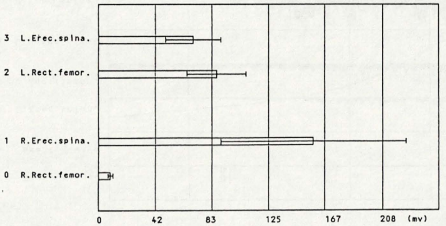
ch	total	meen	sd
3	5833.060	46.294	19.342
2	3777.180	29.978	24.405
1	5967.640	47.362	25.278
0	12648.200	100.383	47.052

誘発テンポ=120 (C.MUR.10:10.m.)

[MAB] meen= 895.875(sd 57.165)msec. tempo=133.947(sd 8.547) [8] heart rate= 95.815(sd 1.530)

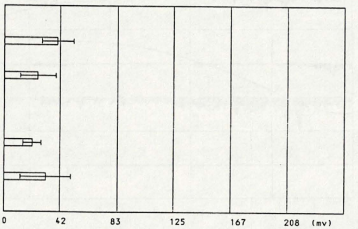


[MAB 10:10. m] EMG data from 385 to 513(114.672 msec / cycl 895.875 msec)



ch	total	meen	sd
3	8958.300	69.444	20.344
2	11208.400	86.887	21.730
1	20398.700	158.130	67.890
0	1114.080	8.636	1.729

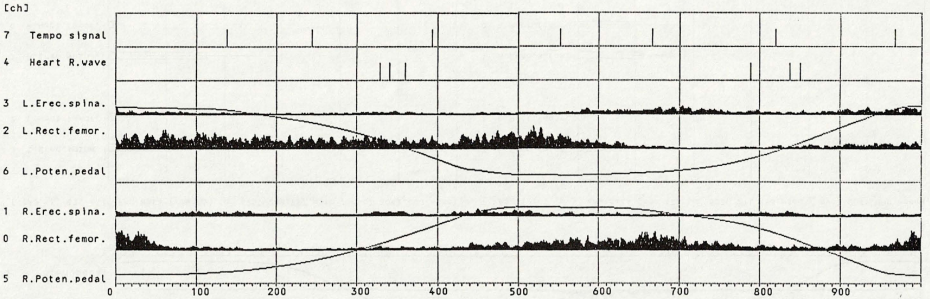
[MAB 10:10. m] EMG data from 513 to 635(109.297 msec / cycl 895.875 msec)



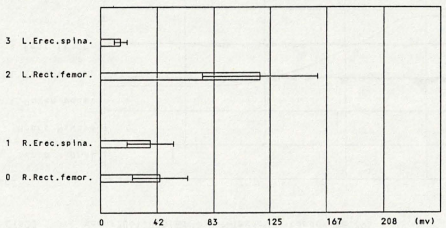
ch	total	meen	sd
3	4886.650	39.729	11.644
2	3104.750	25.242	13.363
1	2568.330	20.881	6.672
0	3802.520	30.915	18.679

誘発テンポ＝１２０ (M. SAW. 10:10. f.)

[SA5]　meen=1163.000(sd 18.520)msec.　tempo=103.181(sd 1.643)　[3]　heart rate=106.446(sd 3.208)

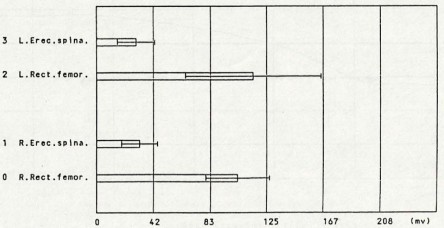


[SA5 10:10. f] EMG data from 375 to 500(145.375 msec / cycl 1163.000 msec)



ch	total	meen	sd
3	1834.880	14.563	4.742
2	14816.800	117.594	42.440
1	4620.920	36.674	16.948
0	5500.350	43.654	20.111

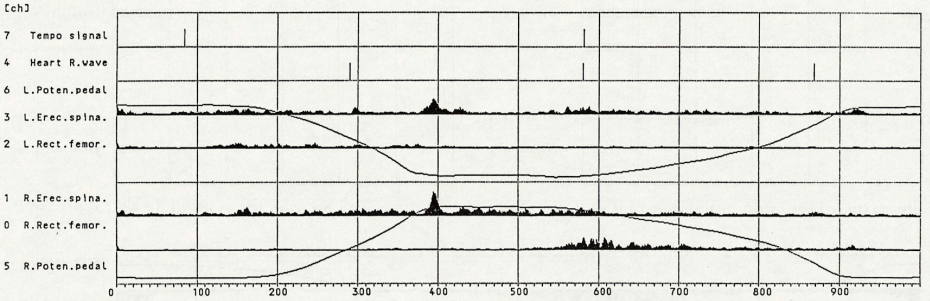
[SA5 10:10. f] EMG data from 500 to 625(145.375 msec / cycl 1163.000 msec)



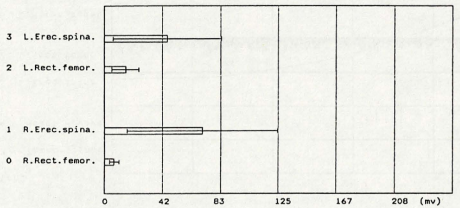
ch	total	meen	sd
3	3642.850	28.912	13.648
2	14493.200	115.025	50.137
1	3954.750	31.387	13.110
0	13029.400	103.408	23.496

誘発テンポ= 60 (T.TAN.11:07.m.)

[TA2] meen=2041.000(sd)msec. tempo= 58.795 [1] heart rate=101.721(sd 0.517)

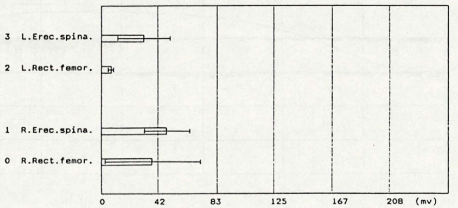


[TA2 11:07. m] EMG data from 353 to 470(238.797 msec / cycl 2041.000 msec)



ch	total	meen	sd
3	5306.110	44.967	39.114
2	1773.320	15.028	9.414
1	8274.480	70.123	54.311
0	782.280	6.629	3.200

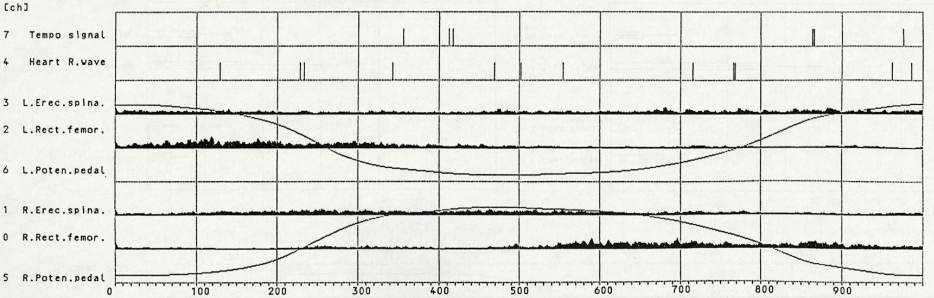
[TA2 11:07. m] EMG data from 470 to 603(271.453 msec / cycl 2041.000 msec)



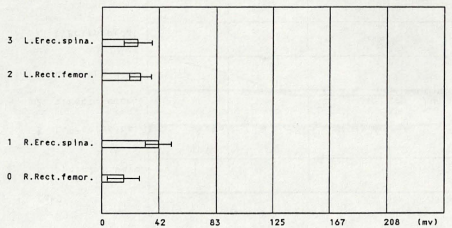
ch	total	meen	sd
3	4154.060	31.000	18.976
2	953.600	7.116	2.019
1	6392.890	47.708	16.059
0	4952.170	36.957	34.574

誘発テンポ= 60 (T.EJI.10:11.m.)

[EA2] meen=1904.000(sd218.259)msec. tempo= 63.025(sd 7.225) [3] heart rate=131.118(sd 2.004)

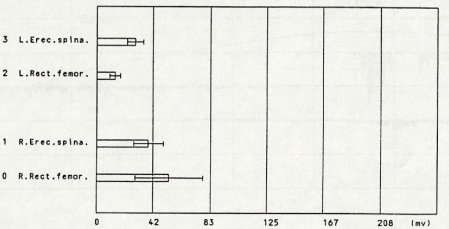


[EA2 10:11. m] EMG data from 375 to 500(238.000 msec / cycl 1904.000 msec)



ch	total	meen	sd
3	3287.520	26.091	10.320
2	3543.920	28.126	8.070
1	5168.590	41.021	9.511
0	2002.130	15.890	11.767

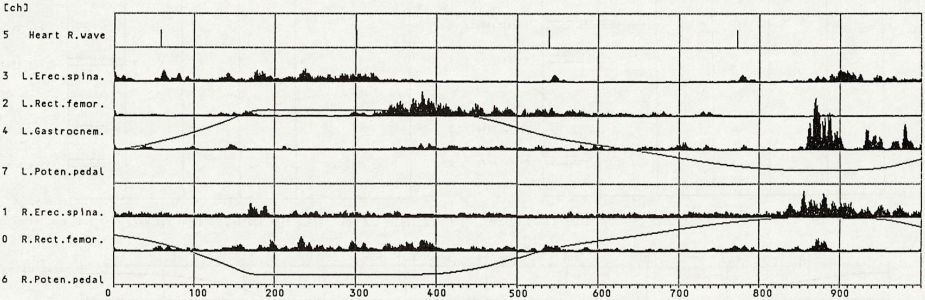
[EA2 10:11. m] EMG data from 500 to 625(238.000 msec / cycl 1904.000 msec)



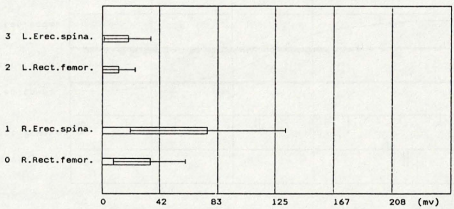
ch	total	meen	sd
3	3587.920	28.476	6.121
2	1719.710	13.649	3.937
1	4789.800	38.014	10.745
0	6706.160	53.224	24.959

誘発テンポ= 60 (M.SAN. 7:08.f.)

[ZA3] meen=2024.000(sd)msec. tempo= 59.289 [1] heart rate=124.382(SD 2.581)

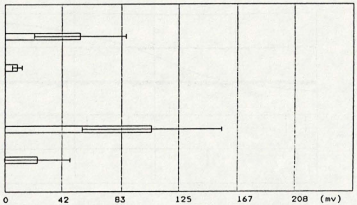


[ZA3 7:08. f] EMG data from 727 to 875(299.552 msec / cycl 2024.000 msec)



ch	total	meen	sd
3	2743.180	18.411	16.801
2	1736.010	11.651	11.607
1	11354.000	76.201	56.080
0	5126.670	34.407	26.316

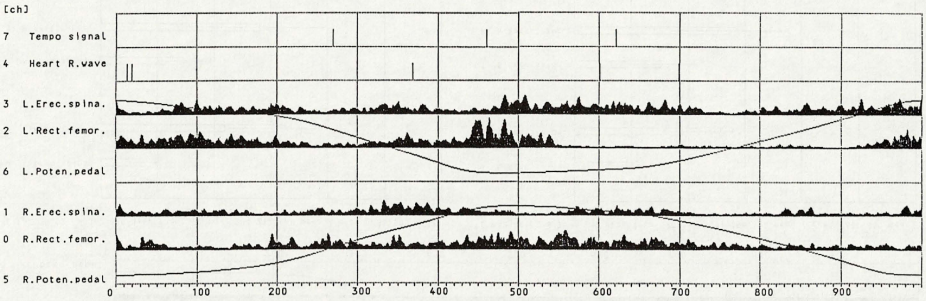
[ZA3 7:08. f] EMG data from 875 to 1000(253.000 msec / cycl 2024.000 msec)



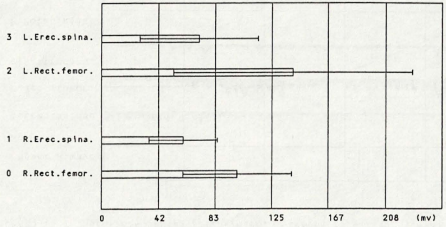
ch	total	meen	sd
3	6814.850	54.086	32.475
2	1103.240	8.756	3.506
1	13317.600	105.695	49.980
0	2933.530	23.282	23.860

誘発テンポ= 90 (Y.TAK. 8:00.m.)

[YA3] meen= 788.000(sd 39.345)msec. tempo=152.284(sd 7.604) [3] heart rate=119.999(sd 5.040)

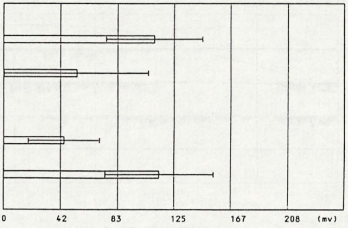


[YA3 8:00. m] EMG data from 375 to 500(98.500 msec / cycl 788.000 msec)



ch	total	meen	sd
3	8999.830	71.427	43.509
2	17688.900	140.388	87.703
1	7513.750	59.633	25.301
0	12528.800	99.435	40.107

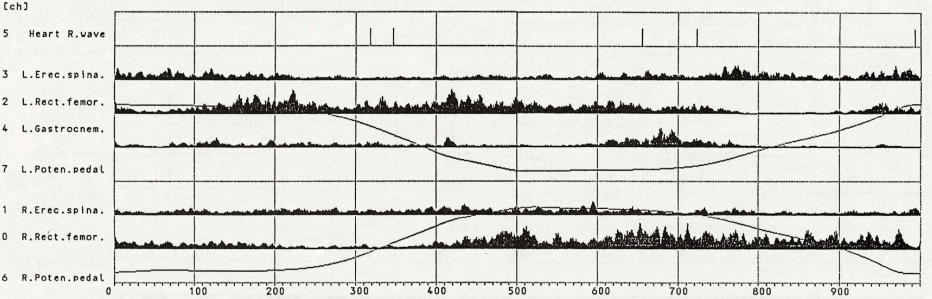
[YA3 8:00. m] EMG data from 500 to 625(98.500 msec / cycl 788.000 msec)



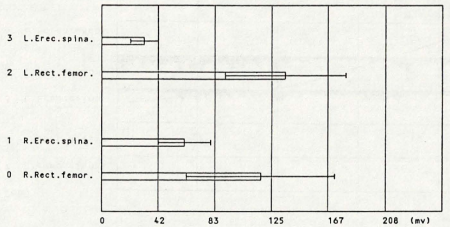
ch	total	meen	sd
3	13921.400	110.488	35.643
2	6714.170	53.287	52.580
1	5533.930	43.920	26.124
0	14348.500	113.877	39.994

傾斜誘発 (N.FUK. 8:02.m.)

[FA2] meen=1634.500(sd 33.234)msec. tempo= 73.417(sd 1.493) [2] heart rate=104.469(sd 6.916)

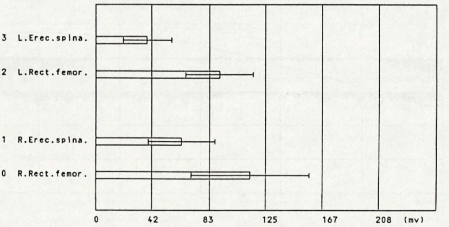


[FA2 8:02. m] EMG data from 390 to 520(212.485 msec / cycl 1634.500 msec)



ch	total	meen	sd
3	4092.830	31.243	10.024
2	17716.100	135.237	44.227
1	8001.540	61.080	19.430
0	15324.300	116.980	54.446

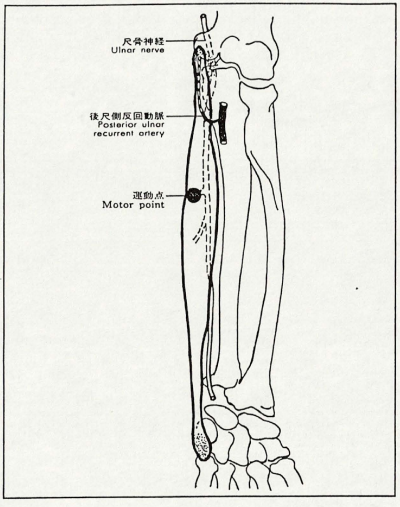
[FA2 8:02 m] EMG data from 520 to 640(196.140 msec / cycl 1634.500 msec)



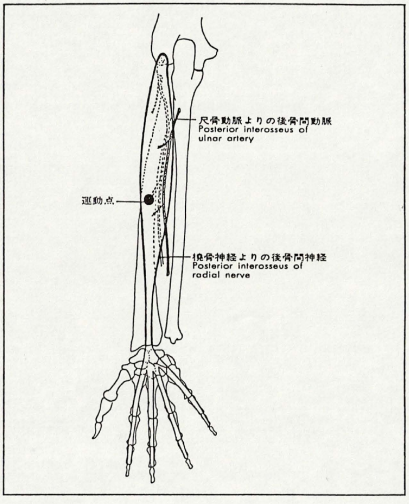
ch	total	meen	sd
3	4607.980	38.083	17.707
2	11010.200	90.993	24.774
1	7637.240	63.118	24.296
0	13740.800	113.560	43.557

D. 交互開閉動作の筋電図学的解析

尺側手根屈筋 Flexor carpi ulnaris

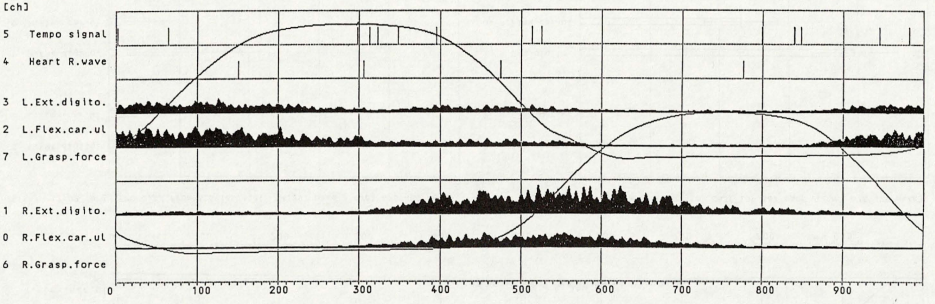


指伸筋 Extensor digitorum

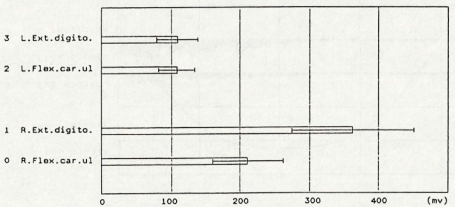


同期テンポ＝２４０　(K. FUJ. 12:02. m.)

[KA7]　　meen= 484.143(sd 39.452)msec.　tempo=247.861(sd 20.198)　[7]　　heart rate= 78.870(sd 3.666)

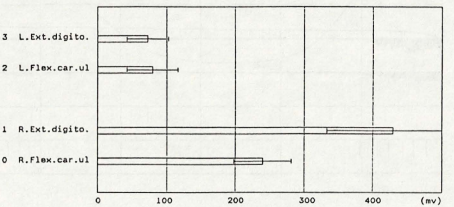


[KA7 12:02. m] EMG data from 380 to 472(44.541 msec / cycl 484.143 msec)



ch	total	meen	sd
3	10117.800	108.794	29.883
2	10043.900	107.999	26.044
1	33748.000	362.882	88.086
0	19655.500	211.350	51.116

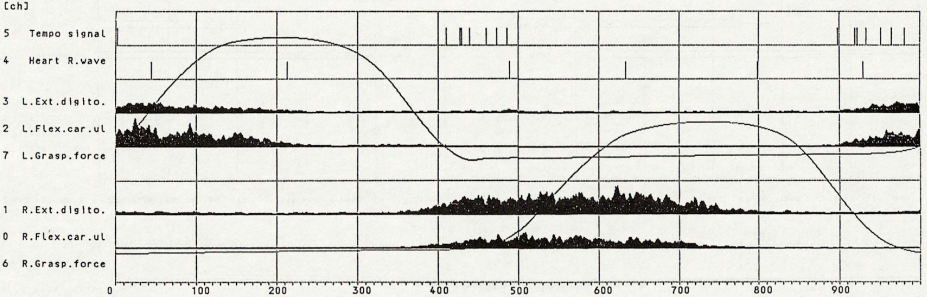
[KA7 12:02. m] EMG data from 473 to 613(67.780 msec / cycl 484.143 msec)



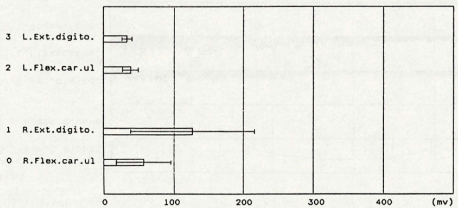
ch	total	meen	sd
3	10300.800	73.055	30.072
2	11211.500	79.515	36.237
1	60456.300	428.768	95.999
0	33801.800	239.729	41.845

同期テンポ＝１８０　(K.FUJ.12:02.m.)

[KA7]　meen= 675.429(sd 9.378)msec.　tempo=177.665(sd 2.467)　[7]　heart rate= 77.680(sd 2.252)

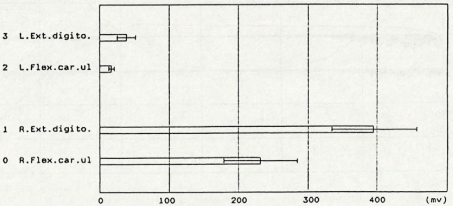


[KA7 12:02. m] EMG data from 316 to 426(74.297 msec / cycl 675.429 msec)



ch	total	meen	sd
3	3678.860	33.143	7.162
2	4201.950	37.855	10.862
1	14119.100	127.199	88.842
0	6326.440	56.995	39.247

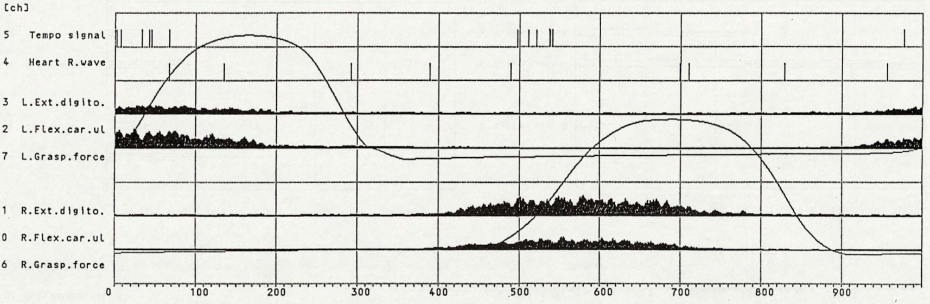
[KA7 12:02 m] EMG data from 427 to 583(105.367 msec / cycl 675.429 msec)



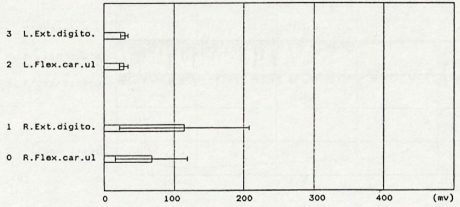
ch	total	meen	sd
3	6179.910	39.363	12.881
2	2669.140	17.001	3.570
1	62075.700	395.386	61.350
0	36461.400	232.239	52.983

同期テンポ＝１２０　(K. FUJ. 12:02. m.)

[KA6]　meen=1010.570(sd 45.033)msec.　tempo=118.745(sd 5.291)　[7]　heart rate= 75.357(sd 3.101)

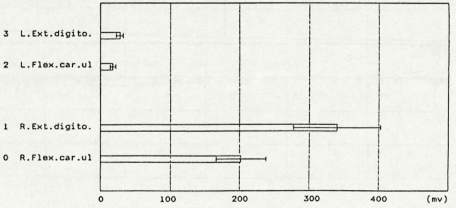


[KA6 12:02. m] EMG data from 324 to 482(159.670 msec / cycl1010.570 msec)



ch	total	meen	sd
3	4724.810	29.716	5.654
2	4525.160	28.460	6.317
1	18288.800	115.024	93.160
0	10743.000	67.566	51.761

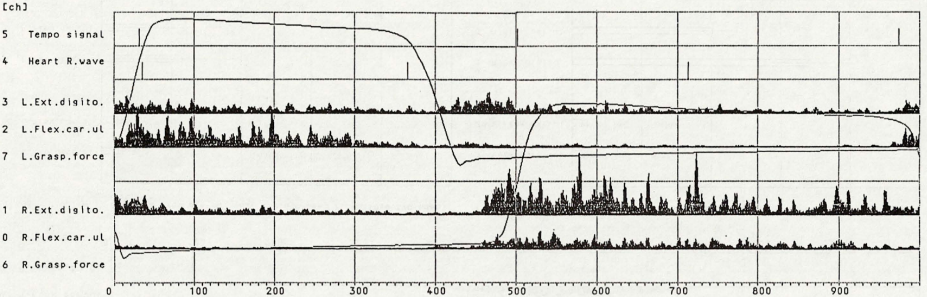
[KA6 12:02. m] EMG data from 483 to 586(104.089 msec / cycl1010.570 msec)



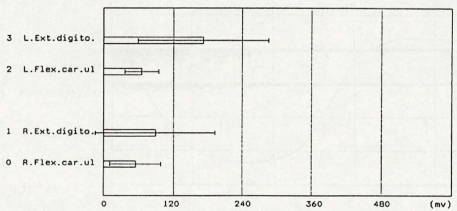
ch	total	meen	sd
3	2904.630	27.929	5.374
2	1886.250	18.137	3.726
1	35368.500	340.081	62.981
0	21038.300	202.292	35.822

交互伸展 (K.FUJ.12:02.m.)

[KA9] meen=2139.000(sd)msec. tempo= 56.101 [1] heart rate= 82.745(sd 2.762)

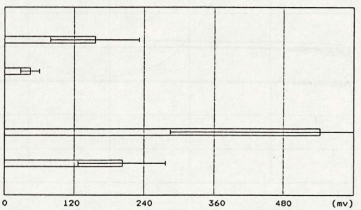


[KA9 12:02. m] EMG data from 363 to 471(231.012 msec / cycl2139.000 msec)



ch	total	meen	sd
3	18810.900	172.577	113.261
2	7109.900	65.228	29.190
1	9768.500	89.619	103.505
0	5908.000	54.202	43.963

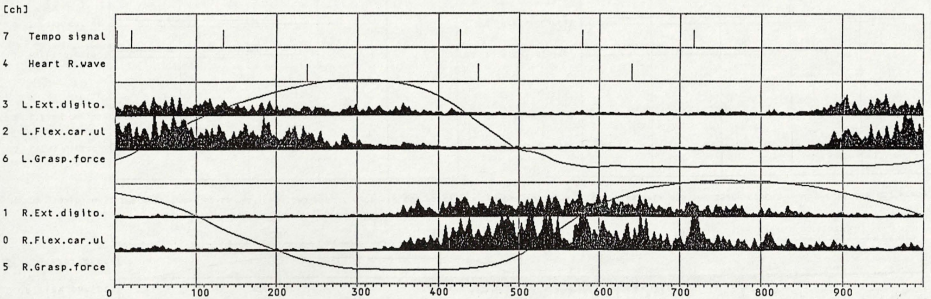
[KA9 12:02. m] EMG data from 472 to 580(231.012 msec / cycl2139.000 msec)



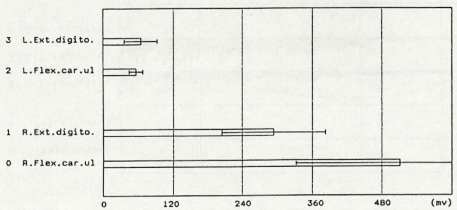
ch	total	meen	sd
3	16993.800	155.907	75.244
2	4821.180	44.231	17.208
1	59183.600	542.969	257.837
0	22077.400	202.545	75.244

同期テンポ＝２００　(C.MUR.10:10.m.)

[MD3]　meen= 521.000(sd 21.517)msec.　tempo=230.326(sd 9.513)　[3]　heart rate= 95.482(sd 0.779)

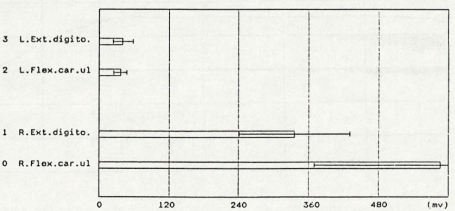


[MD3 10:10. m] EMG data from 395 to 488(48.453 msec / cycl 521.000 msec)



ch	total	meen	sd
3	6044.070	64.299	28.562
2	5261.800	55.977	12.137
1	27611.900	293.743	88.978
0	48035.500	511.015	178.354

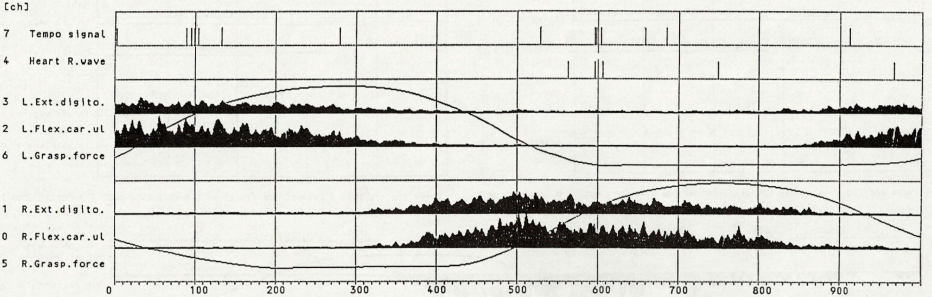
[MD3 10:10. m] EMG data from 489 to 582(48.453 msec / cycl 521.000 msec)



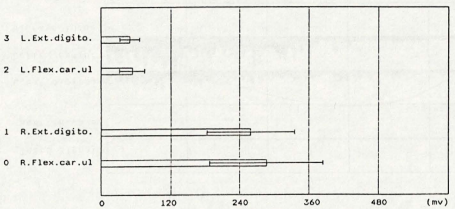
ch	total	meen	sd
3	3867.760	41.146	17.314
2	3444.080	36.639	11.080
1	31584.000	336.000	94.940
0	55129.400	586.483	217.022

同期テンポ＝１８０　(C. MUR. 10:10. m.)

[MD2]　meen= 612.857(sd 63.125)msec.　tempo=195.804(sd 20.168)　[7]　heart rate= 92.639(sd 1.868)

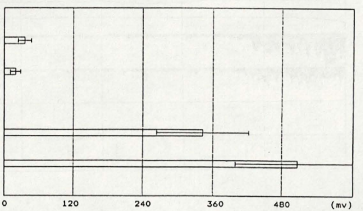


[MD2 10:10. m] EMG data from 362 to 454(56.383 msec / cycl 612.857 msec)



ch	total	meen	sd
3	4572.880	49.171	17.236
2	4938.200	53.099	21.692
1	24141.200	259.582	76.002
0	26632.700	286.373	99.178

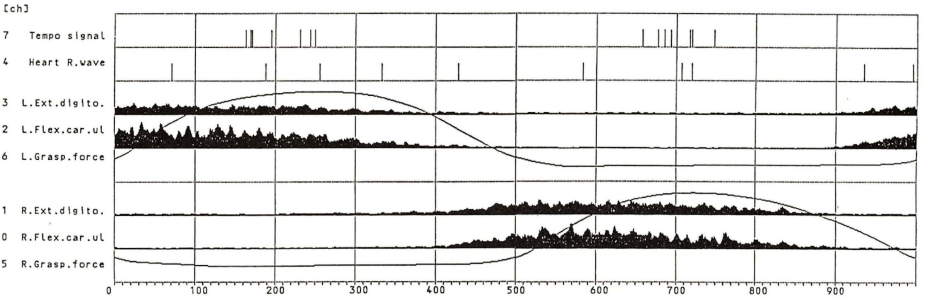
[MD2 10:10. m] EMG data from 455 to 587(80.897 msec / cycl 612.857 msec)



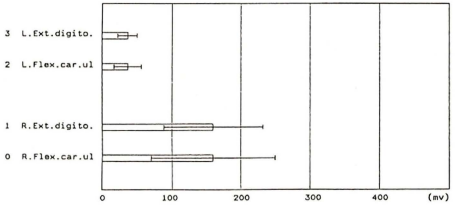
ch	total	meen	sd
3	4841.820	36.405	11.915
2	2645.290	19.889	8.789
1	45720.000	343.759	79.223
0	67349.500	506.387	107.756

同期テンポ＝１２０　(C.MUR.10:10.m.)

[MD1]　meen=1012.570(sd 57.815)msec.　tempo=118.510(sd 6.767)　[7]　heart rate= 85.887(sd 3.357)

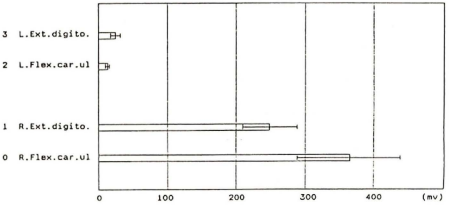


[MD1 10:10. m] EMG data from 389 to 517(129.609 msec / cycl1012.570 msec)



ch	total	meen	sd
3	4664.270	36.157	14.326
2	4699.360	36.429	19.750
1	20683.400	160.337	71.201
0	20638.600	159.989	90.231

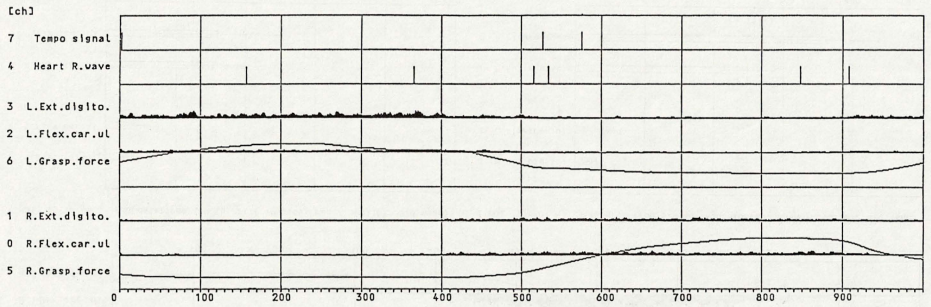
[MD1 10:10. m] EMG data from 518 to 620(103.282 msec / cycl1012.570 msec)



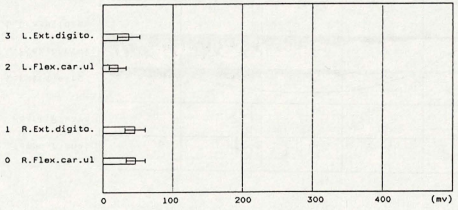
ch	total	meen	sd
3	2616.250	25.401	6.923
2	1333.140	12.943	2.978
1	25682.100	249.341	39.469
0	37469.800	363.784	74.696

TOO FAST(feedback) (M. SAW. 10:10. f.)

[SD1] meen=1217.330(sd413.585)msec. tempo= 98.576(sd 33.491) [3] heart rate= 99.640(sd 1.383)

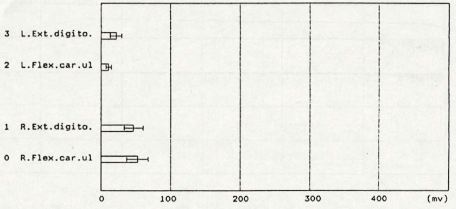


[SD1 10:10. f] EMG data from 409 to 583(211.815 msec / cycl1217.330 msec)



ch	total	meen	sd
3	6306.360	36.036	15.545
2	3620.390	20.688	11.905
1	7949.340	45.425	14.873
0	8136.730	46.496	13.994

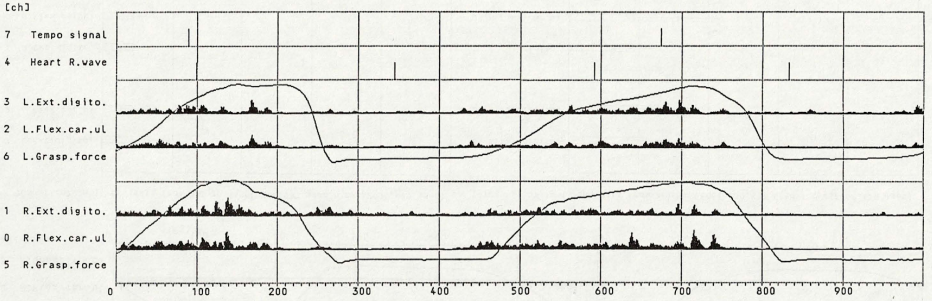
[SD1 10:10. f] EMG data from 584 to 692(131.472 msec / cycl1217.330 msec)



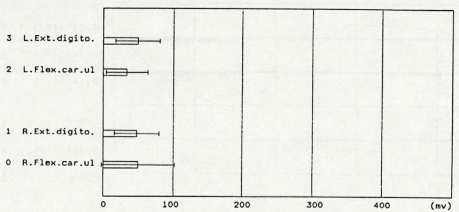
ch	total	meen	sd
3	2348.200	21.543	8.855
2	1205.790	11.062	3.685
1	5161.300	47.351	13.633
0	5769.380	52.930	15.540

交互開閉(feedback) (T. TAN, 11:07. m.)

[TD1] meen=2447.000(sd)msec. tempo= 49.040 [1] heart rate=100.491(sd 1.795)

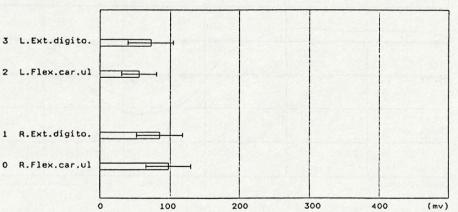


[TD1 11:07. m] EMG data from 356 to 472(283.852 msec / cycl2447.000 msec)



ch	total	meen	sd
3	5837.990	49.897	31.509
2	4011.910	34.290	30.108
1	5631.250	48.130	31.734
0	5807.010	49.633	52.719

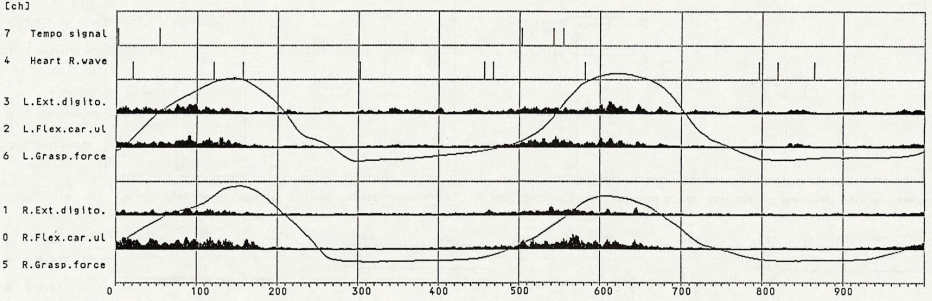
[TD1 11:07. m] EMG data from 473 to 589(283.852 msec / cycl2447.000 msec)



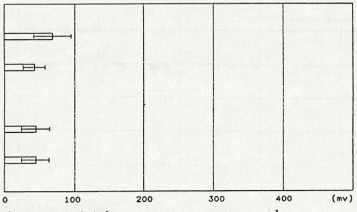
ch	total	meen	sd
3	8525.880	72.871	32.398
2	6531.380	55.824	24.908
1	9923.460	84.816	32.878
0	11410.300	97.524	32.006

同時開閉(feedback) (T. TAN. 11:07. m.)

[TD3] meen=2008.670(sd 59.534)msec. tempo= 59.741(sd 1.771) [3] heart rate= 95.875(sd 6.794)

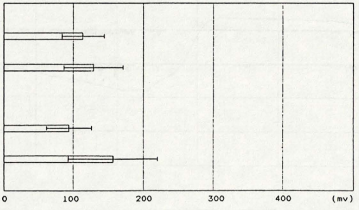


[TD3 11:07. m] EMG data from 375 to 490(230.997 msec / cycl2008.670 msec)



ch	total	meen	sd
3	7943.950	68.482	26.375
2	4937.180	42.562	15.471
1	5099.340	43.960	19.717
0	5086.890	43.853	19.620

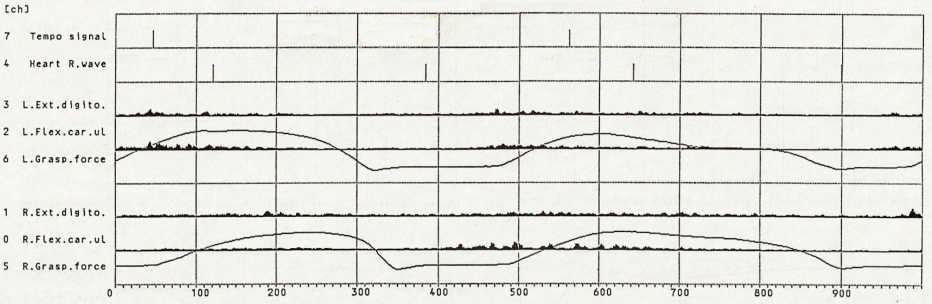
[TD3 11:07. m] EMG data from 491 to 606(230.997 msec / cycl2008.670 msec)



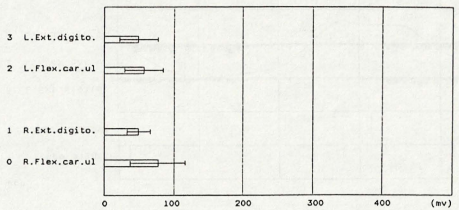
ch	total	meen	sd
3	13268.800	114.386	29.859
2	14953.600	128.910	42.255
1	10895.100	93.923	31.673
0	18139.200	156.373	63.161

交互開閉(feedback) (T. EJI, 10:11. m.)

[ED2] meen=1955.000(sd)msec. tempo= 61.381 [1] heart rate=118.344(sd 1.054)

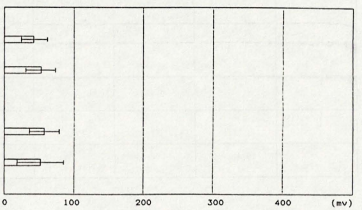


[ED2 10:11. m] EMG data from 436 to 499(123.165 msec / cycl1955.000 msec)



ch	total	meen	sd
3	3164.600	49.447	27.561
2	3635.540	56.805	27.554
1	3158.430	49.351	16.770
0	4899.310	76.552	39.585

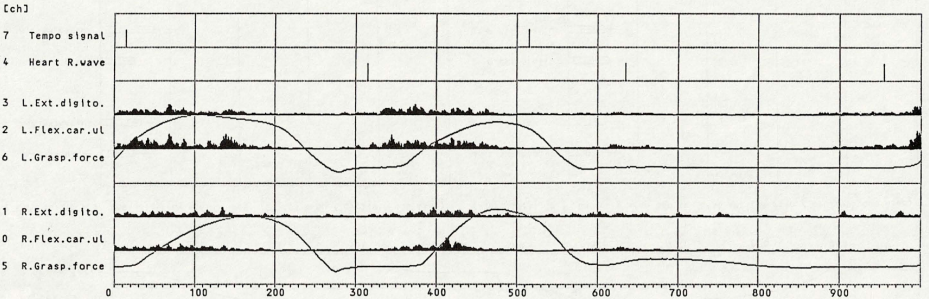
[ED2 10:11. m] EMG data from 500 to 563(123.165 msec / cycl1955.000 msec)



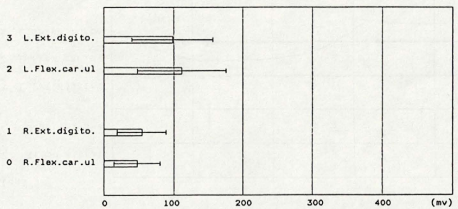
ch	total	meen	sd
3	2782.980	43.484	18.662
2	3368.240	52.629	21.468
1	3688.550	57.634	21.594
0	3309.080	51.704	32.983

同時開閉(feedback) (T.EJI.10:11.m.)

[ED3] meen=1514.000(sd)msec. tempo= 79.260 [1] heart rate=123.844(sd 0.547)

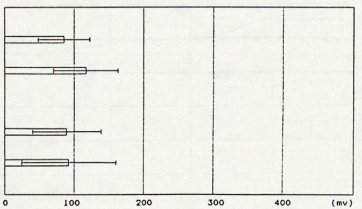


[ED3 10:11. m] EMG data from 298 to 387(134.746 msec / cycl1514.000 msec)



ch	total	meen	sd
3	8871.150	98.568	58.191
2	10114.500	112.383	64.056
1	4845.290	53.837	35.059
0	4254.950	47.277	32.909

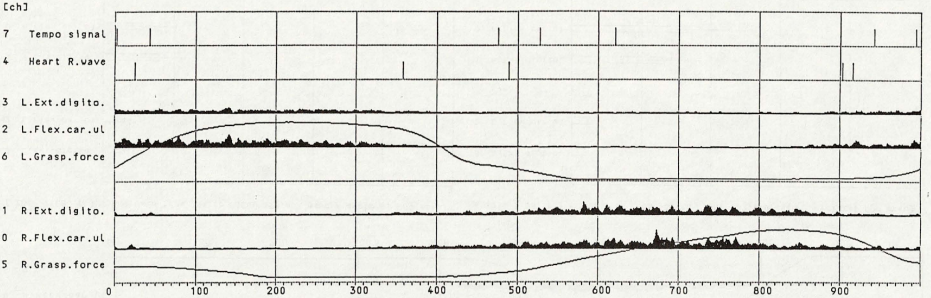
[ED3 10:11. m] EMG data from 388 to 477(173.995 msec / cycl1955.000 msec)



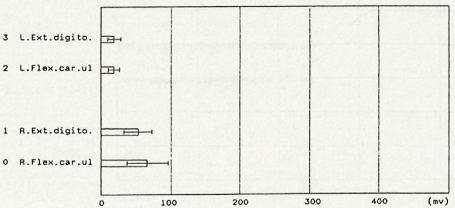
ch	total	meen	sd
3	7718.520	85.761	36.994
2	10521.400	116.905	45.812
1	8110.330	90.115	49.155
0	8316.190	92.402	67.855

TOO FAST(feedback) (M. SAN. 7:08. m.)

[ZD2] meen=1091.670(sd243.943)msec. tempo=109.924(sd 24.564) [3] heart rate= 87.110(sd 3.506)

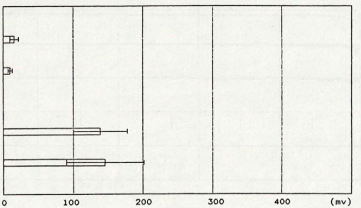


[ZD2 7:08. f] EMG data from 365 to 514(162.659 msec / cycl1091.670 msec)



ch	total	meen	sd
3	2818.680	18.791	8.888
2	2853.770	19.025	7.801
1	7949.110	52.994	20.327
0	9957.290	66.382	29.682

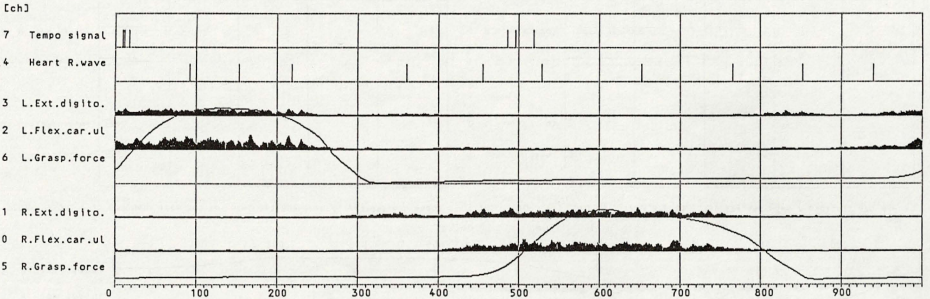
[ZD2 7:08. f] EMG data from 515 to 675(174.667 msec / cycl1091.670 msec)



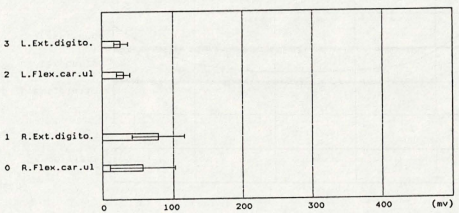
ch	total	meen	sd
3	2553.580	15.861	5.879
2	1602.000	9.950	2.749
1	22433.400	139.338	38.945
0	23541.300	146.219	55.481

交互開閉(feedback) (M.SAN. 7:08.f.)

[ZD1] meen=2241.000(sd 86.017)msec. tempo= 53.548(sd 2.055) [3] heart rate= 90.132(sd 3.540)

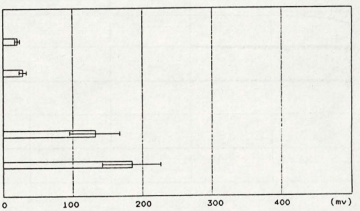


[ZD1 7:08. f] EMG data from 311 to 488(396.657 msec / cycl2241.000 msec)



ch	total	meen	sd
3	4696.160	26.383	9.382
2	5272.120	29.619	9.712
1	14034.400	78.845	36.782
0	10084.400	56.654	46.017

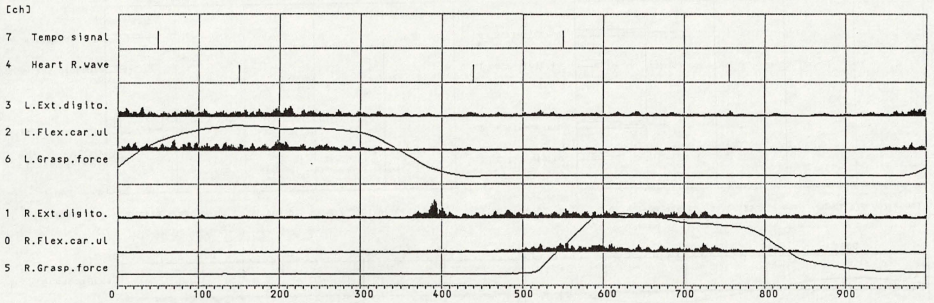
[ZD1 7:08. f] EMG data from 489 to 548(132.219 msec / cycl2241.000 msec)



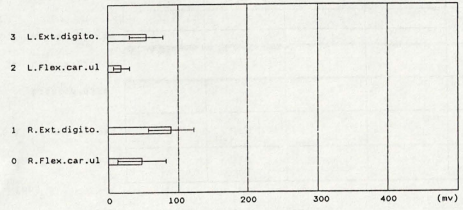
ch	total	meen	sd
3	1228.900	20.482	3.051
2	1697.240	28.287	5.766
1	7897.740	131.629	35.453
0	11077.100	184.618	42.251

交互開閉(feedback) (Y. TAK. 8:00. m.)

[YD3] meen=2175.000(sd)msec. tempo= 55.172 [1] heart rate= 91.044(sd 5.949)

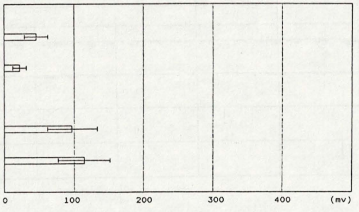


[YD3 8:00. m] EMG data from 426 to 525(215.325 msec / cycl2175.000 msec)



ch	total	meen	sd
3	5512.160	55.122	23.984
2	1939.980	19.400	11.263
1	9018.330	90.183	32.662
0	4823.520	48.235	35.129

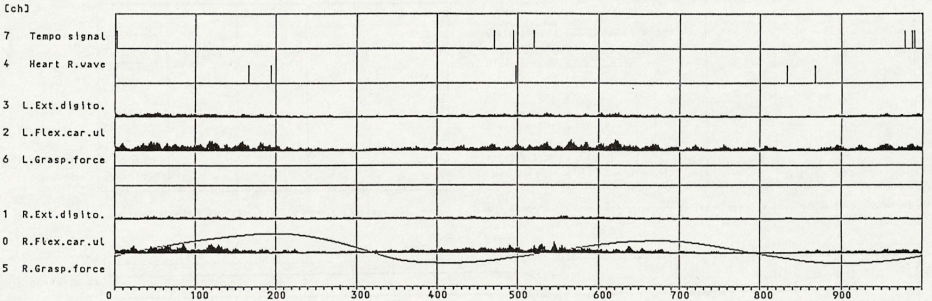
[YD3 8:00. m] EMG data from 526 to 625(215.325 msec / cycl2175.000 msec)



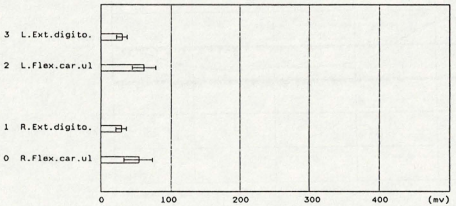
ch	total	meen	sd
3	4575.950	45.760	17.170
2	2159.830	21.598	10.086
1	9749.300	97.493	35.111
0	11453.300	114.533	37.722

FEEDBACK (N.FUK. 8:02.m.)

[FD1] meen= 974.667(sd 78.653)msec. tempo=123.119(sd 9.935) [3] heart rate= 91.116(sd 7.122)

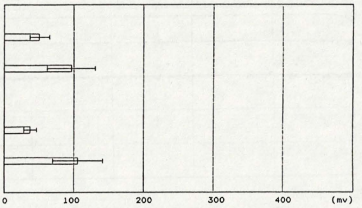


[FD1 8:02. m] EMG data from 306 to 413(104.289 msec / cycl 974.667 msec)



ch	total	meen	sd
3	3193.840	29.573	7.239
2	6563.020	60.769	17.048
1	3100.710	28.710	7.765
0	5778.350	53.503	20.737

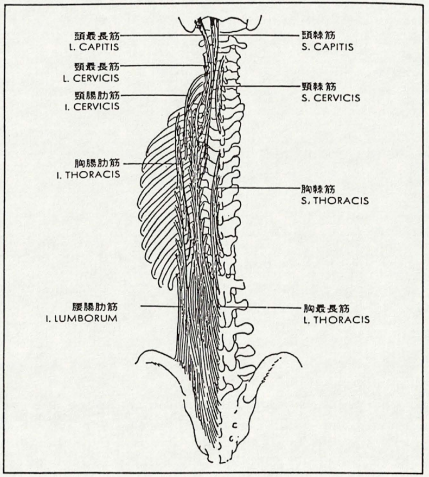
[FD1 8:02. m] EMG data from 414 to 543(125.732 msec / cycl 974.667 msec)

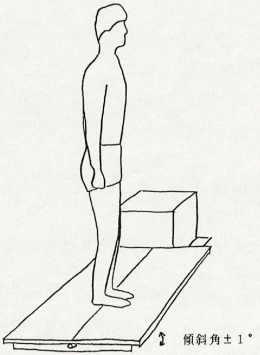


ch	total	meen	sd
3	6676.580	51.358	14.722
2	12553.900	96.569	34.306
1	4834.500	37.188	9.679
0	13754.500	105.804	35.516

E. Stage-setting 能の筋電図学的解析

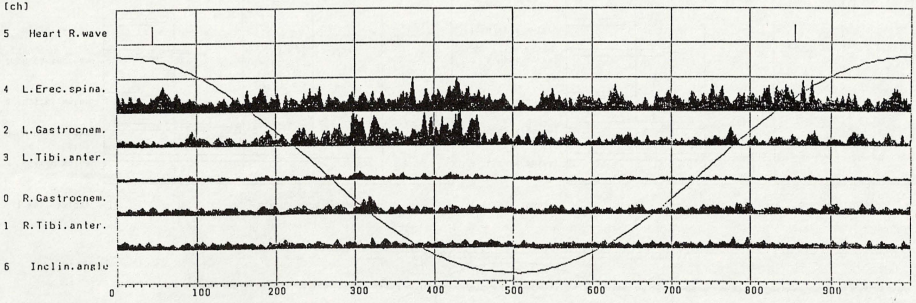
脊柱起立筋 (仙棘筋) Erector spinae (Sacrospinalis)



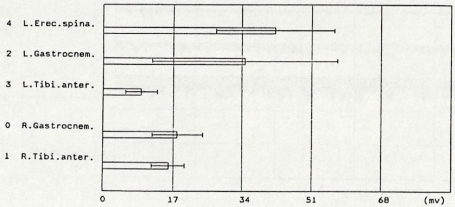


傾斜テンポ= 90 (K.FUJ.12:02.m.)

[KB3] meen= 656.667(sd 5.859)msec. tempo= 91.371(sd 0.815) [3] heart rate= 76.615

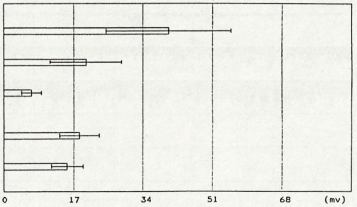


[KB3 12:02. m] E.M.G data from 1 to 500



ch	total	meen	sd
4	21072.000	42.144	14.404
2	17340.900	34.682	22.723
3	4621.350	9.243	3.811
0	9027.480	18.055	6.176
1	7864.800	15.730	3.924

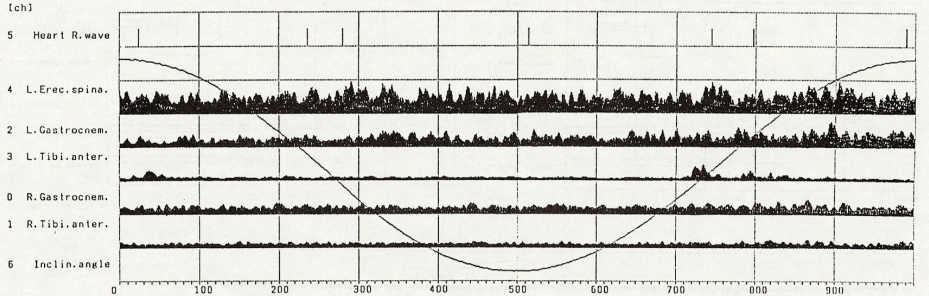
[KB3 12:02. m] E.M.G data from 501 to 1000



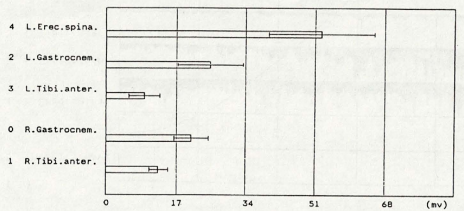
ch	total	meen	sd
4	20115.600	40.231	15.311
2	10027.800	20.056	8.596
3	3420.180	6.840	2.412
0	9208.060	18.416	4.816
1	7760.970	15.522	3.888

傾斜テンポ= 60 (K.FUJ.12:02.m.)

[KB1] meen= 997.800(sd 14.805)msec. tempo= 60.132(sd 0.892) [5] heart rate= 79.097(sd 1.056)

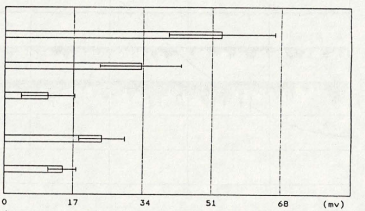


[KB1 12:02. m] E.M.G data from 1 to 500



ch	total	meen	sd
4	26242.500	52.485	12.896
2	12693.100	25.386	8.015
3	4585.480	9.171	3.688
0	10383.000	20.766	4.300
1	6298.610	12.597	2.305

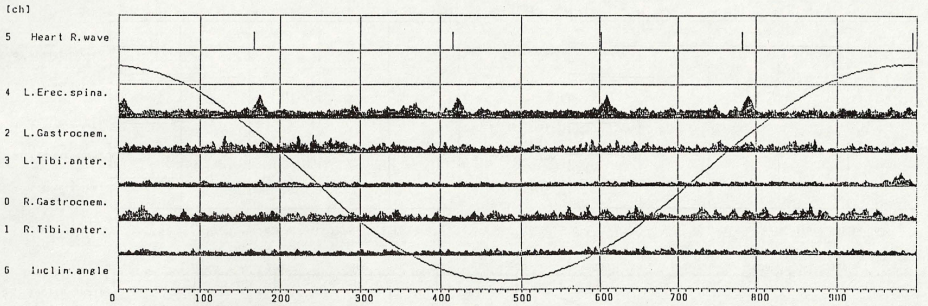
[KB1 12:02 .m] E.M.G data from 501 to 1000



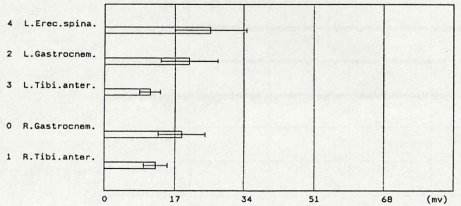
ch	total	meen	sd
4	26676.300	53.353	13.082
2	16749.900	33.500	10.092
3	5366.400	10.733	6.642
0	11912.000	23.824	5.528
1	7194.320	14.389	3.504

傾斜テンポ= 45 (K.FUJ.12:02.m.)

[KB6] meen=1302.830(sd 11.550)msec. tempo= 46.054(sd 0.409) [3] heart rate= 75.585(sd 2.777)

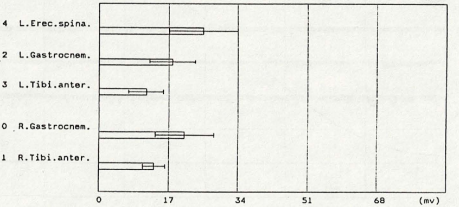


[KB6 12:02. m] E.M.G data from 1 to 500



ch	total	meen	sd
4	12909.600	25.819	8.845
2	10306.000	20.612	7.072
3	5484.380	10.969	2.387
0	9377.760	18.756	5.773
1	6209.000	12.418	2.940

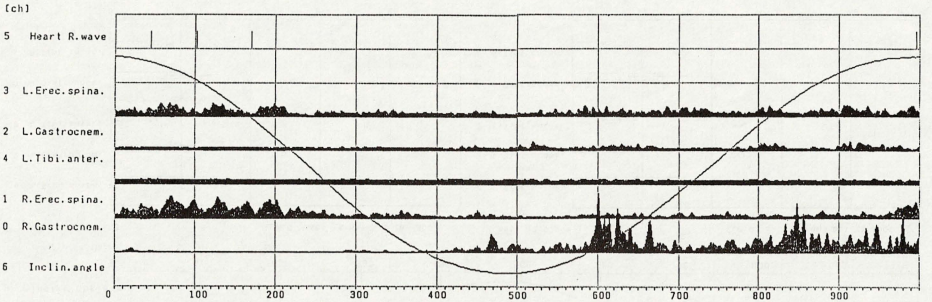
[KB6 12:02. m] E.M.G data from 501 to 1000



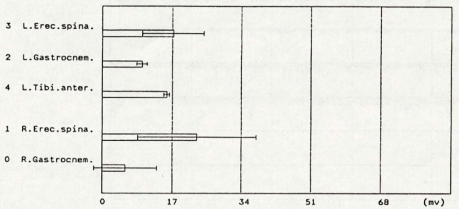
ch	total	meen	sd
4	12770.100	25.540	8.395
2	9029.140	18.058	5.618
3	5747.840	11.496	4.153
0	10444.900	20.890	7.134
1	6722.890	13.446	2.703

傾斜テンポ= 90 (C.MUR.10:10.m.)

[MB6] meen= 655.667(sd 9.609)msec. tempo= 91.510(sd 1.341) [3] heart rate= 94.817(sd 3.063)

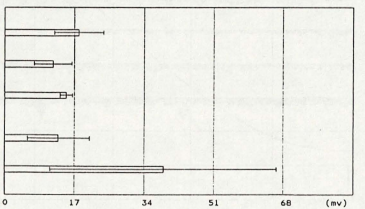


[MB6 10:10. m] E.M.G data from 1 to 500



ch	total	meen	sd
3	8646.200	17.292	7.600
2	4803.670	9.607	1.270
4	7822.840	15.646	0.682
1	11536.200	23.072	14.454
0	2785.960	5.572	7.672

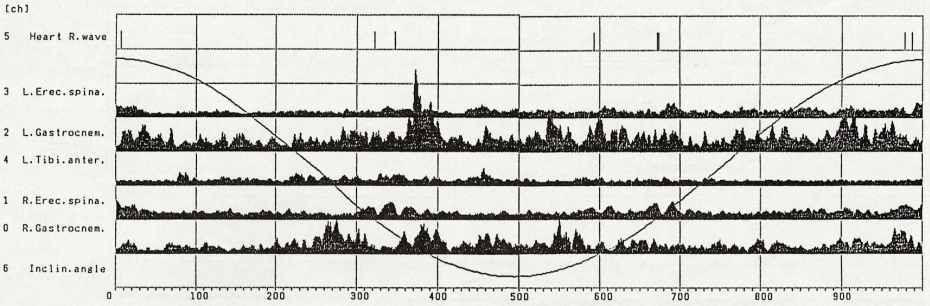
[MB6 10:10. m] E.M.G data from 501 to 1000

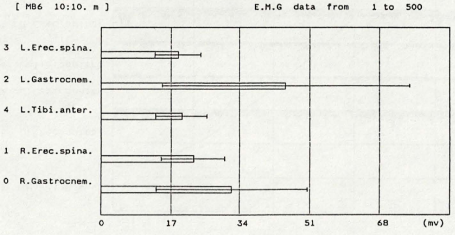


ch	total	meen	sd
3	9055.300	18.111	5.914
2	5949.660	11.899	4.510
4	7566.680	15.133	1.528
1	6565.200	13.130	7.539
0	19370.800	38.742	27.600

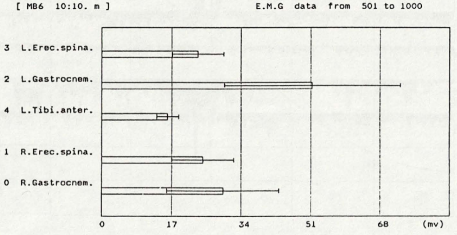
傾斜テンポ= 60 (C.MUR.10:10.m.)

[MB6] meen=1009.300(sd 5.461)msec. tempo= 59.447(sd 0.322) [5] heart rate= 90.626(sd 3.347)





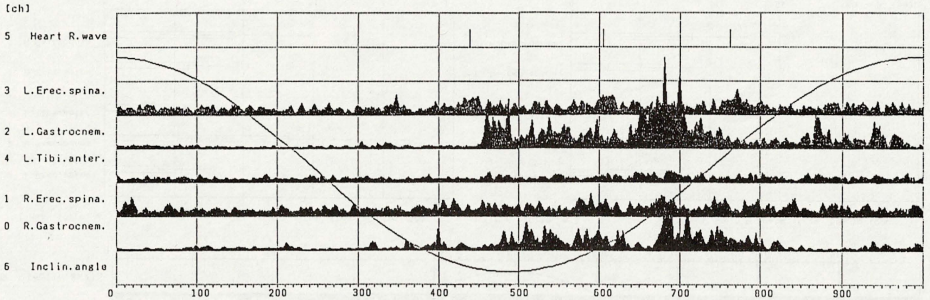
ch	total	meen	sd
3	9402.630	18.805	5.730
2	22583.700	45.167	30.179
4	9818.030	19.636	6.296
1	11265.000	22.530	7.916
0	15972.700	31.946	18.471



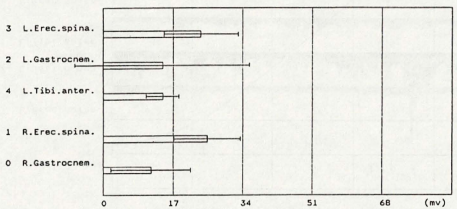
ch	total	meen	sd
3	11715.400	23.431	6.343
2	25673.600	51.347	21.498
4	8025.120	16.050	2.645
1	12291.600	24.583	7.537
0	14771.900	29.544	13.685

傾斜テンポ= 90 (M.SAW.10:10.f.)

[SB3] meen= 651.667(sd 1.528)msec. tempo= 92.072(sd 0.216) [3] heart rate= 78.993(sd 0.610)

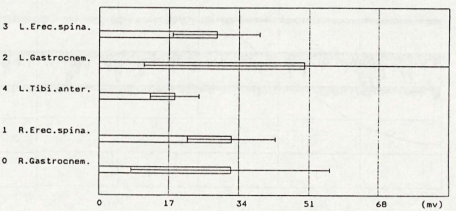


[SB3 10:10. f] E.M.G data from 1 to 500



ch	total	meen	sd
3	11918.600	23.837	9.076
2	7208.360	14.417	21.289
4	7186.800	14.374	3.939
1	12623.000	25.246	8.048
0	5768.520	11.537	9.752

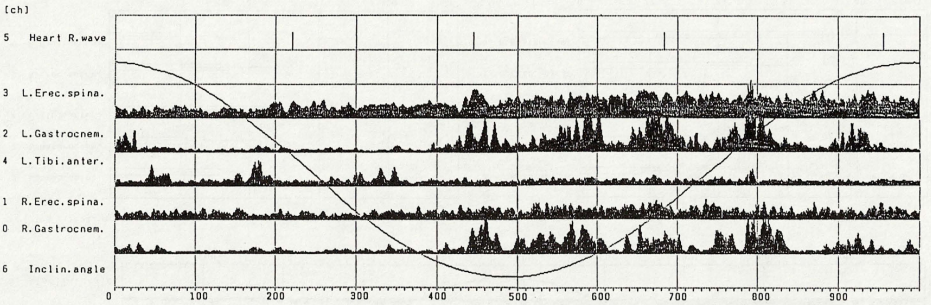
[SB3 10:10. f] E.M.G data from 501 to 1000

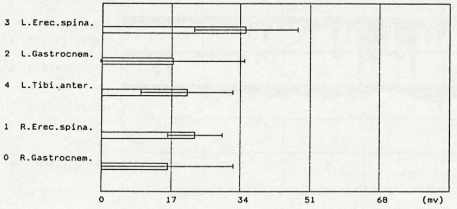


ch	total	meen	sd
3	14305.800	28.612	10.547
2	24935.900	49.872	38.784
4	9171.070	18.342	5.776
1	16069.300	32.139	10.638
0	15985.600	31.971	24.128

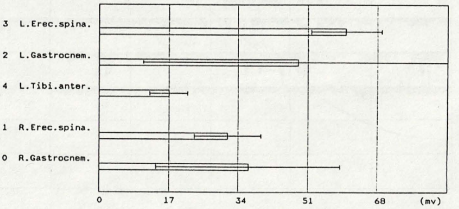
傾斜テンポ= 60 (M.SAW.10:10.f.)

[SB2] meen=1013.670(sd 8.963)msec. tempo= 59.191(sd 0.523) [3] heart rate= 80.485(sd 2.338)





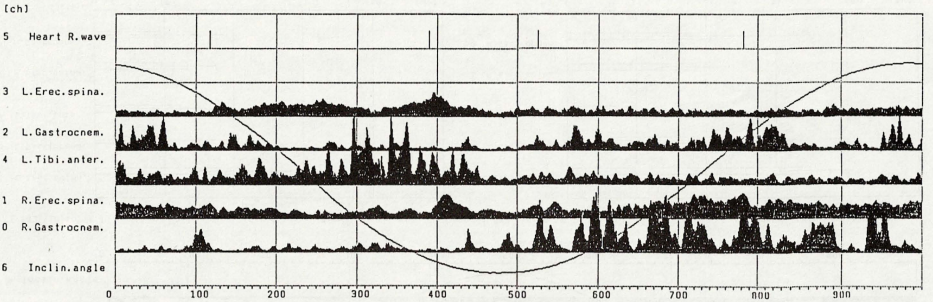
ch	total	meen	sd
3	17670.000	35.340	12.788
2	8691.180	17.382	17.680
4	10428.500	20.857	11.291
1	11405.000	22.810	6.709
0	8086.770	16.174	16.138



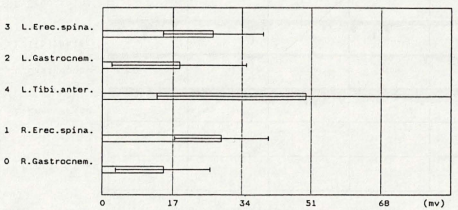
ch	total	meen	sd
3	30209.700	60.419	8.544
2	24272.600	48.545	37.640
4	8513.440	17.027	4.556
1	15732.900	31.466	8.140
0	18238.000	36.476	22.547

傾斜テンポ= 60 (T.TAN.11:07.m.)

[TB3] meen=1002.330(sd 54.501)msec. tempo= 59.860(sd 3.255) [3] heart rate= 83.104(sd 2.033)

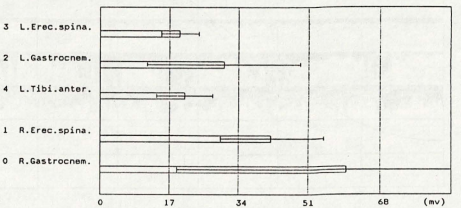


[TB3 11:07. m] E.M.G data from 1 to 500



ch	total	meen	sd
3	13408.400	26.817	12.207
2	9324.520	18.649	16.365
4	24800.700	49.601	36.502
1	14508.800	29.018	11.490
0	7413.180	14.826	11.512

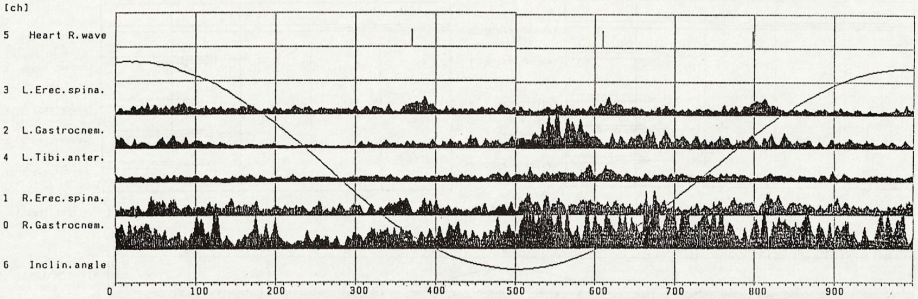
[TB3 11:07. m] E.M.G data from 501 to 1000



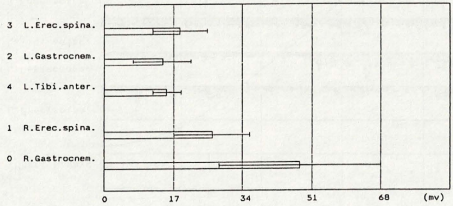
ch	total	meen	sd
3	9784.000	19.568	4.510
2	15187.200	30.374	18.783
4	10358.400	20.717	6.795
1	20981.700	41.964	12.491
0	29841.200	59.682	40.790

傾斜テンポ= 90 (T. EJI. 10:11. m.)

[EB2] meen= 668.500(sd 59.387)msec. tempo= 89.753(sd 7.973) [3] heart rate=110.965(sd 2.144)

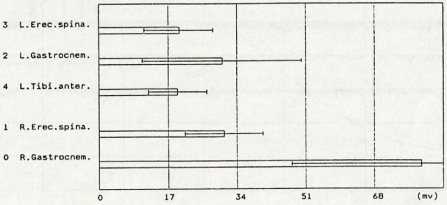


[EB2 10:11. m] E.M.G data from 1 to 500



ch	total	meen	sd
3	9280.570	18.561	6.737
2	7115.640	14.231	7.058
4	7679.910	15.360	3.496
1	13217.900	26.436	9.446
0	24059.800	48.120	19.954

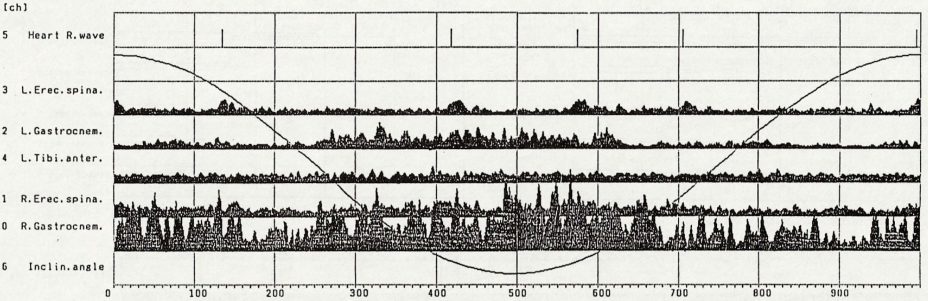
[EB2 10:11. m] E.M.G data from 501 to 1000



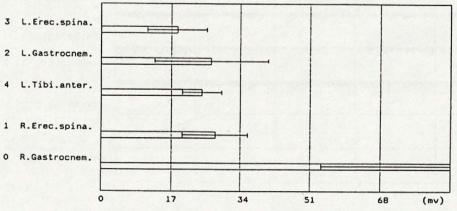
ch	total	meen	sd
3	9818.260	19.637	8.360
2	15187.400	30.375	19.661
4	9685.090	19.370	7.085
1	15376.300	30.753	9.677
0	39798.500	79.597	32.018

傾斜テンポ= 60 (T.EJI.10:11.m.)

[EB1] meen=1011.330(sd 5.774)msec. tempo= 59.328(sd 0.339) [3] heart rate=103.658(sd 1.451)

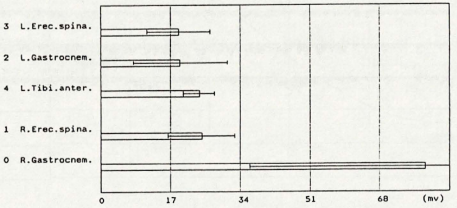


[EB1 10:11. m] E.M.G data from 1 to 500



ch	total	meen	sd
3	9265.360	18.531	7.235
2	13440.900	26.882	13.912
4	12285.500	24.571	4.847
1	13926.900	27.854	8.099
0	45570.400	91.141	37.391

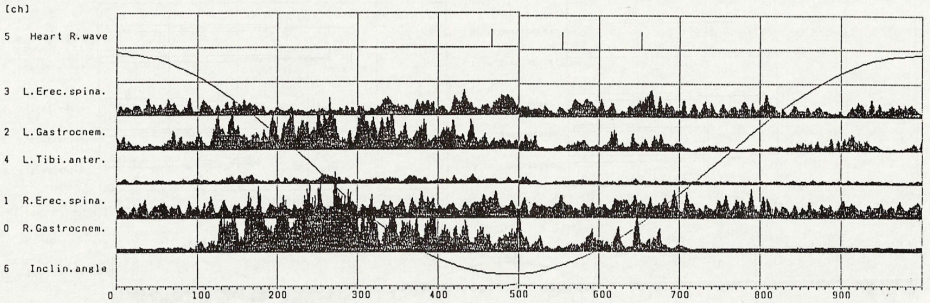
[EB1 10:11. m] E.M.G data from 501 to 1000



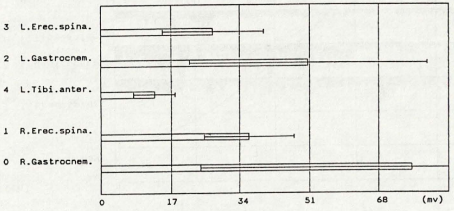
ch	total	meen	sd
3	9481.850	18.964	7.596
2	9680.820	19.362	11.417
4	11961.700	23.924	3.864
1	12286.100	24.572	8.103
0	39628.200	79.257	42.855

傾斜テンポ= 90 (M.SAN. 7:08.f.)

[ZB3] meen= 649.833(sd 3.055)msec. tempo= 92.331(sd 0.434) [3] heart rate=101.975(sd 0.771)

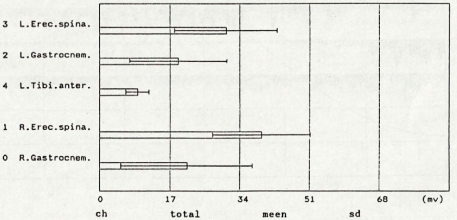


[ZB3 07:08. f] E.M.G data from 1 to 500



ch	total	meen	sd
3	13715.200	27.430	12.508
2	25337.400	50.675	29.074
4	6475.690	12.951	5.087
1	18117.600	36.235	10.995
0	37990.700	75.981	51.683

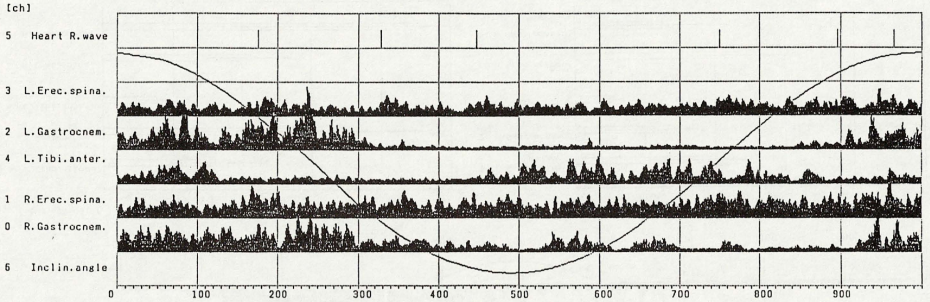
[ZB3 07:08. f] E.M.G data from 501 to 1000



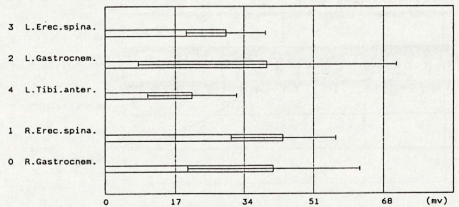
ch	total	meen	sd
3	15329.500	30.659	12.393
2	9529.520	19.059	11.736
4	4565.120	9.130	2.804
1	19650.500	39.301	11.874
0	10523.300	21.047	15.999

傾斜テンポ= 60 (M.SAN. 7:08.f.)

[ZB1] meen=1011.000(sd 5.292)msec. tempo= 59.347(sd 0.311) [3] heart rate=106.320(sd 4.470)

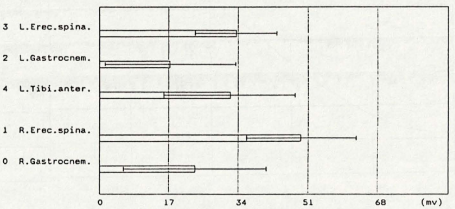


[ZB1 07:08. f] E.M.G data from 1 to 500



ch	total	meen	sd
3	14751.000	29.502	9.806
2	19800.000	39.600	31.570
4	10567.000	21.134	10.988
1	21780.300	43.561	12.818
0	20594.300	41.189	21.070

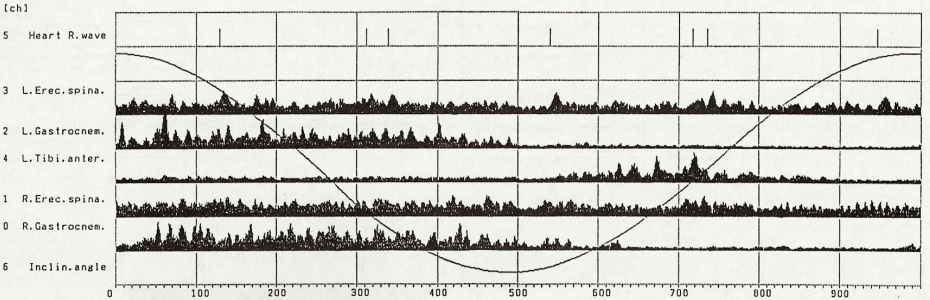
[ZB1 07:08. f] E.M.G data from 501 to 1000



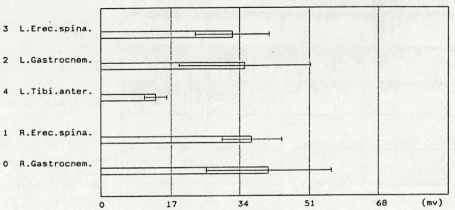
ch	total	meen	sd
3	16753.600	33.507	10.019
2	8643.670	17.287	15.957
4	15939.200	31.878	16.075
1	24671.200	49.342	13.345
0	11711.000	23.422	17.510

傾斜テンポ= 40 (M.SAN. 7:08.f.)

[ZB4] meen=1488.330(sd 20.207)msec. tempo= 40.314(sd 0.547) [3] heart rate= 99.754(sd 1.826)

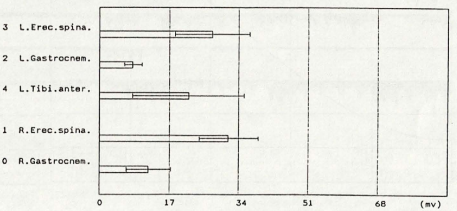


[ZB4 07:08. f] E.M.G data from 1 to 500



ch	total	meen	sd
3	16087.800	32.176	9.217
2	17601.800	35.204	16.087
4	6618.210	13.236	2.738
1	18445.800	36.892	7.345
0	20508.200	41.016	15.406

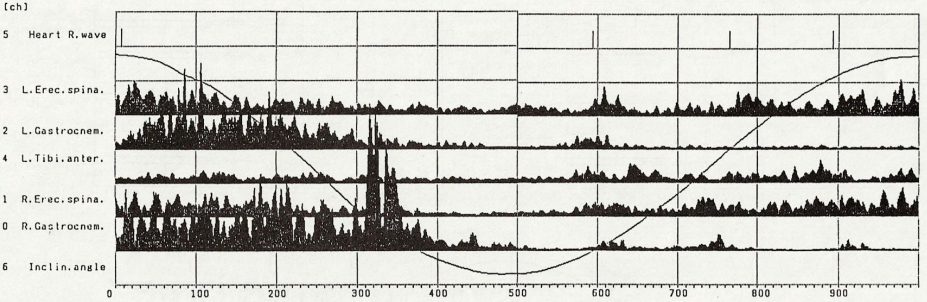
[ZB4 07:08. f] E.M.G data from 501 to 1000



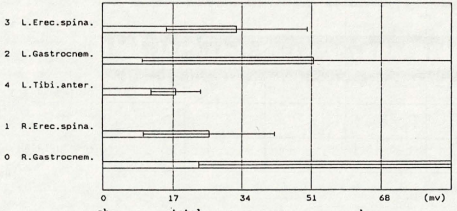
ch	total	meen	sd
3	13760.800	27.522	9.168
2	4109.140	8.218	2.090
4	10912.800	21.826	13.597
1	15763.100	31.526	7.171
0	5988.380	11.977	5.345

傾斜テンポ= 90 (Y.TAK. 8:00.m.)

[YB3] meen= 648.333(sd 15.218)msec. tempo= 92.545(sd 2.172) [3] heart rate=106.969(sd 4.535)

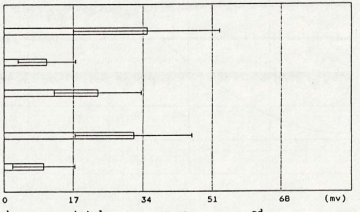


[YB3 08:00. m] E.M.G data from 1 to 500



ch	total	meen	sd
3	16330.300	32.661	17.258
2	25763.400	51.527	42.038
4	8844.440	17.689	6.178
1	12976.300	25.953	16.067
0	47943.000	95.886	72.379

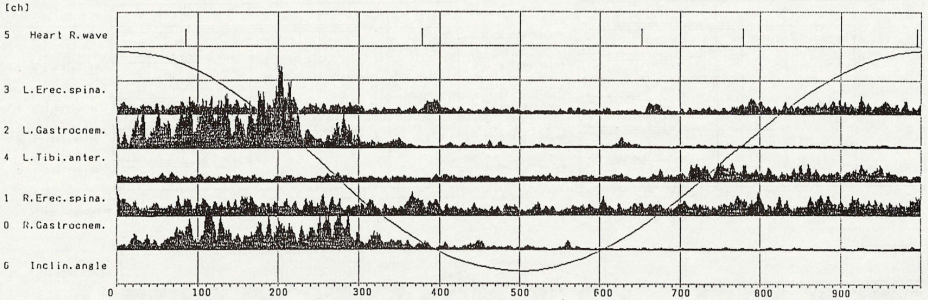
[YB3 08:00. m] E.M.G data from 501 to 1000



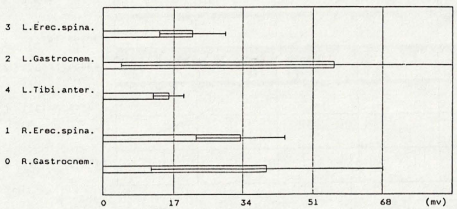
ch	total	meen	sd
3	17485.900	34.972	17.935
2	5299.020	10.598	7.136
4	11497.100	22.994	10.510
1	15872.200	31.744	14.292
0	4907.550	9.815	7.695

傾斜テンポ= 60 (Y.TAK. 8:00.m.)

[YB2] meen=1010.000(sd 7.810)msec. tempo= 59.406(sd 0.459) [3] heart rate=102.014(sd 5.041)

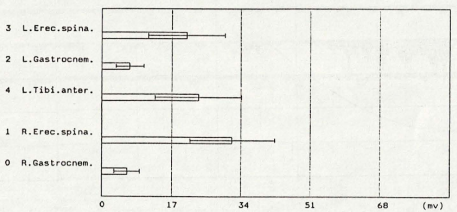


[YB2 08:00. m] E.M.G data from 1 to 500



ch	total	meen	sd
3	10822.000	21.644	8.109
2	28093.800	56.188	51.711
4	7882.880	15.766	3.728
1	16644.600	33.289	10.899
0	19929.100	39.858	28.272

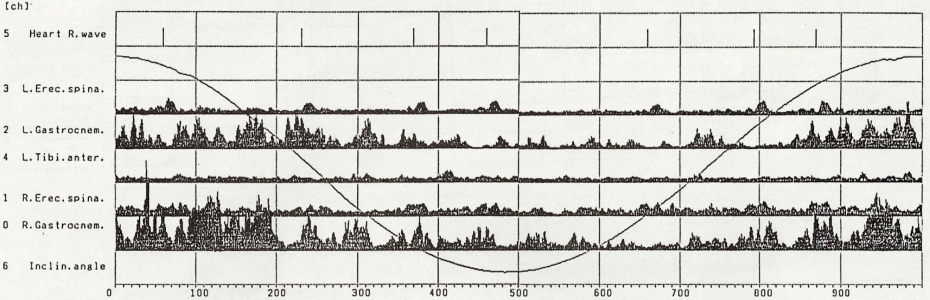
[YB2 08:00. m] E.M.G data from 501 to 1000



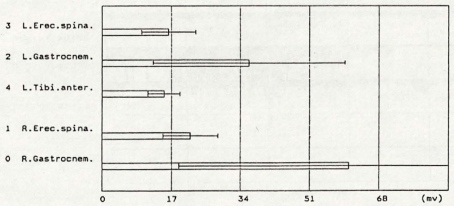
ch	total	meen	sd
3	10381.500	20.763	9.301
2	3389.770	6.780	3.412
4	11776.900	23.554	10.678
1	15931.200	31.862	10.481
0	3064.240	6.128	3.047

傾斜テンポ= 40 (Y.TAK. 8:00.m.)

[YB4] meen=1498.330(sd 12.662)msec. tempo= 40.045(sd 0.338) [3] heart rate= 95.970(sd 3.948)

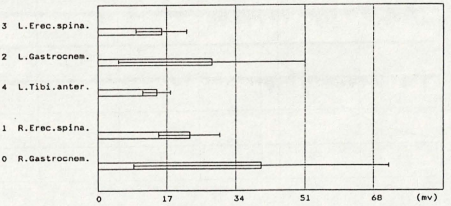


[YB4 08:00. m] E.M.G data from 1 to 500



ch	total	meen	sd
3	8186.800	16.374	6.693
2	18023.700	36.047	23.543
4	7625.700	15.251	3.980
1	10896.600	21.793	6.797
0	30220.700	60.441	41.565

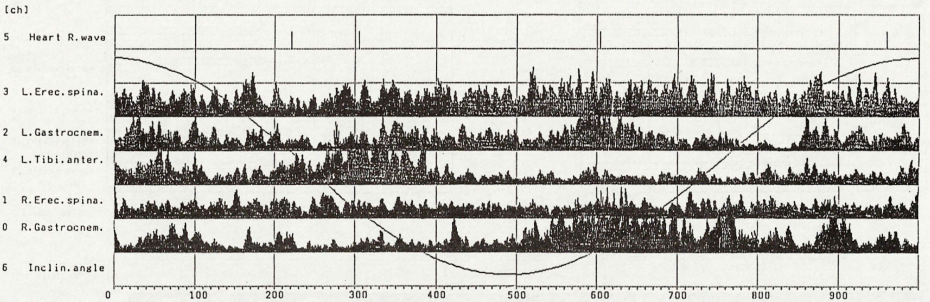
[YB4 08:00. m] E.M.G data from 501 to 1000



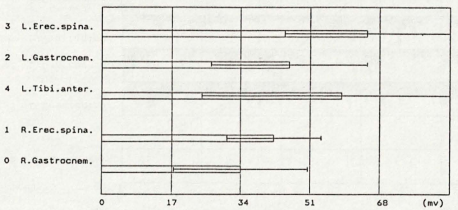
ch	total	meen	sd
3	7872.500	15.745	6.154
2	14005.500	28.011	22.920
4	7332.980	14.666	3.402
1	11271.300	22.543	7.470
0	20125.500	40.251	31.485

傾斜テンポ= 60 (N.FUK. 8:02.m.)

[FB2] meen=1012.000(sd 8.185)msec. tempo= 59.289(sd 0.480) [3] heart rate= 85.585(sd 6.104)

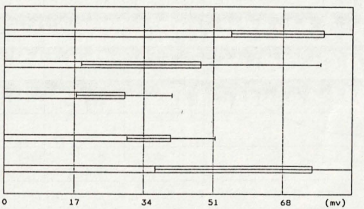


[FB2 08:02. m] E.M.G data from 1 to 500



ch	total	meen	sd
3	32453.200	64.907	20.109
2	22922.900	45.846	19.112
4	29398.200	58.797	34.339
1	21093.500	42.187	11.508
0	17025.400	34.051	16.508

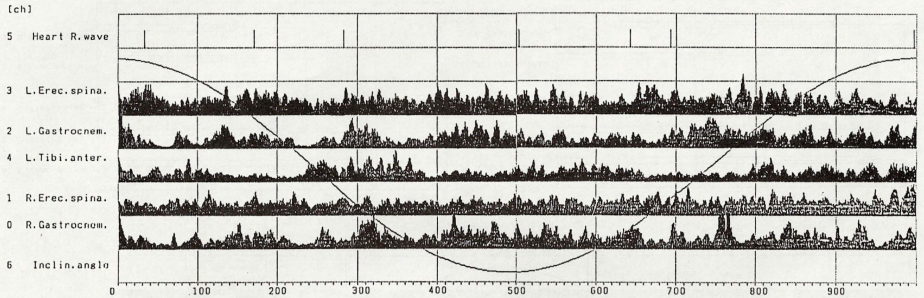
[FB2 08:02. m] E.M.G data from 501 to 1000



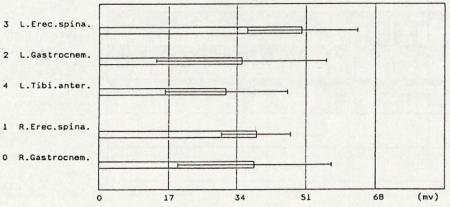
ch	total	meen	sd
3	38977.000	77.954	22.533
2	23965.200	47.930	29.196
4	14610.500	29.221	11.669
1	20328.100	40.656	10.795
0	37655.900	75.312	38.396

傾斜テンポ= 40 (N. FUK. 8:02. m.)

[FB3] meen=1481.670(sd 25.813)msec. tempo= 40.495(sd 0.705) [3] heart rate= 89.501(sd 8.651)

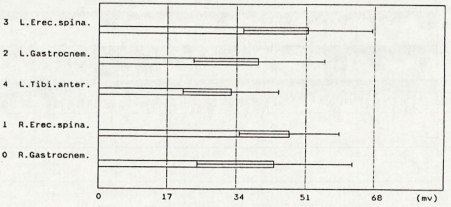


[FB3 08:02. m] E.M.G data from 1 to 500



ch	total	meen	sd
3	25029.200	50.058	13.583
2	17569.000	35.138	21.004
4	15678.700	31.357	15.210
1	19398.000	38.796	8.521
0	19161.500	38.323	19.020

[FB3 08:02. m] E.M.G data from 501 to 1000



ch	total	meen	sd
3	25745.100	51.490	15.778
2	19729.700	39.459	16.060
4	16295.100	32.590	11.725
1	23423.000	46.846	12.233
0	21707.200	43.414	19.184

報　告　資　料

第 3 部

F. リズム・スコレール調査

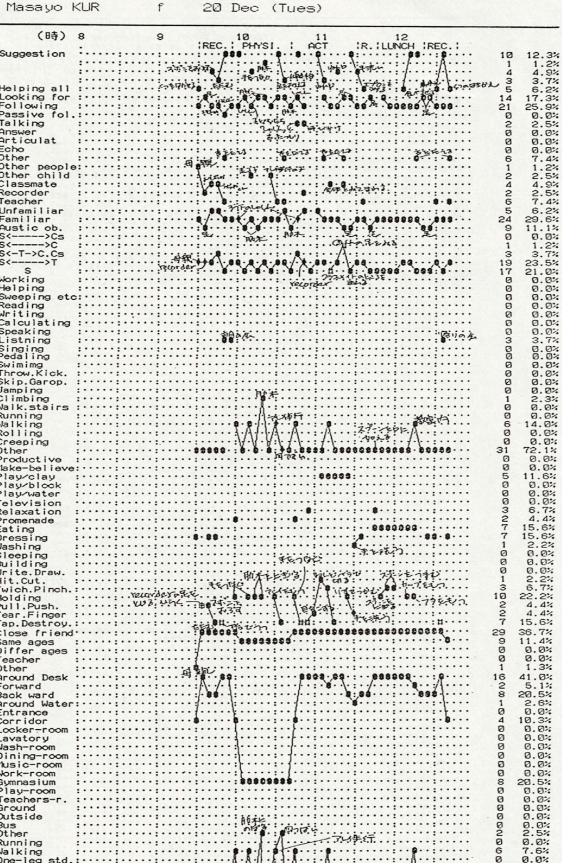
カテゴリー　一覧

A　教師の働きかけ
a　5　言語教示
　　4
　　3
　　2
　　1　全面介助
B　定位対象
a　3　注視・探索
　　2　追視
　　1　追従
b　5　話しかけ
　　4　応答
　　3　行為調節
　　2　ｅｃｈｏ
　　1　その他
c　5　他の人
　　4　他の子供
　　3　同級生
　　2　検査者
　　1　教師
d　3　新奇
　　2　親密
　　1　固執
C　対人関係
a　5　Ｓ<---->Ｃｓ
　　4　Ｓ<--->Ｃ
　　3　Ｓ<-Ｔ->Ｃ
　　2　Ｓ<--->Ｔ
　　1　　Ｓ
D　活動内容
a　3　仕事
　　2　手伝い
　　1　そうじ
b　・読む
　　・書く
　　・数える
　　・話す
　　・聞く
　　・歌う

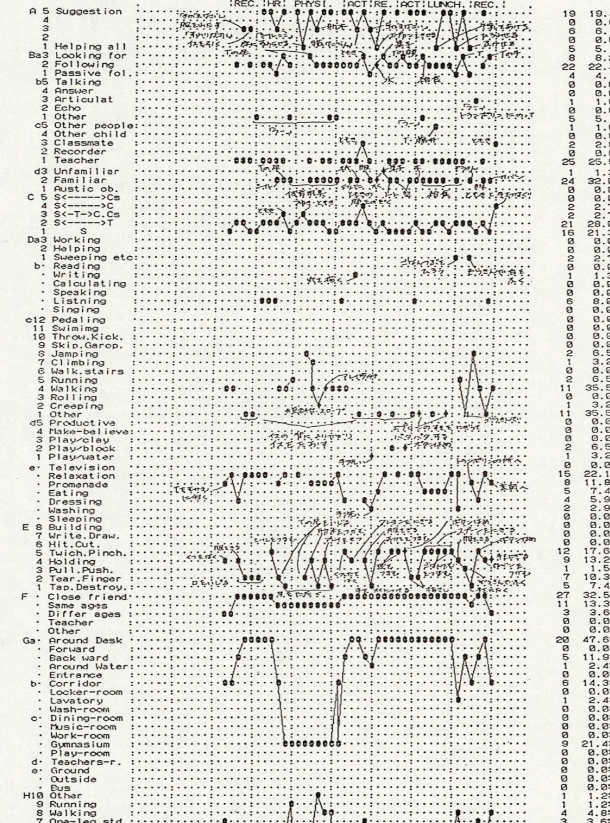
c１２　自転車乗り
　　１１　水泳
　　１０　ボール投げ・けり
　　９　スキップギャロップ
　　８　跳躍
　　７　登る
　　６　階段
　　５　走る
　　４　歩く
　　３　ごろごろ
　　２　はう
　　１　その他
d　5　構成遊び
　　4　ごっこ遊び
　　3　粘土遊び
　　2　積み木遊び
　　1　水遊び
e　・テレビ
　　・ぼんやり
　　・移動
　　・食事
　　・着脱
　　・洗面
　　・睡眠
E　手の操作
a　8　組み立てる
　　7　書く・描く
　　6　打つ・切る
　　5　ひねる・つまむ
　　4　持つ
　　3　引く・押す
　　2　ちぎる・いじる
　　1　たたく・こわす
F　まわりの人々
a　・友人
　　・同年齢（学年）
　　・異年齢（全体）
　　・教師
　　・その他の大人

G　場所
a　・机
　　・前方
　　・後方
　　・水道
　　・入口
b　・廊下
　　・更衣室
　　・トイレ
　　・洗面室
c　・食堂
　　・音楽室
　　・作業室
　　・体育館
　　・プレイルーム
d　・グランド
　　・他の屋外
　　・車中
H　活動姿勢
a１０　その他
　　９　走る
　　８　歩く
　　７　片足立ち
　　６　Half-sitting
　　５　前傾
　　４　立位
　　３　椅子座
　　２　床座
　　１　臥位

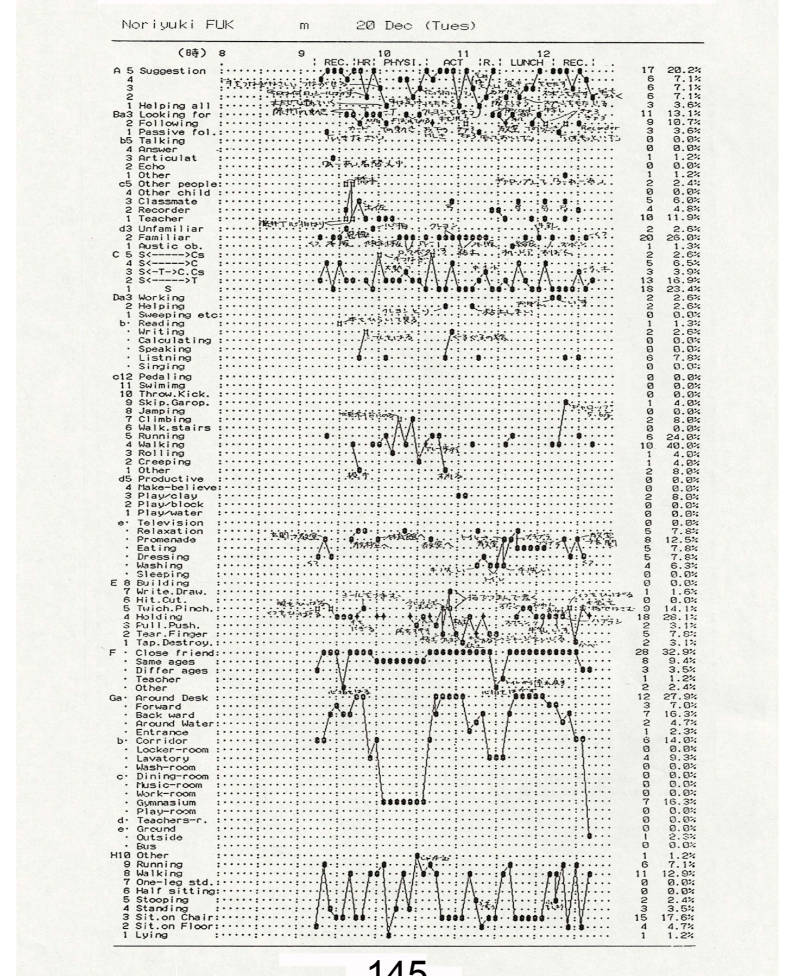
Masayo KUR f 20 Dec (Tues)



Yusuke TAK m 20 Dec (Tues)

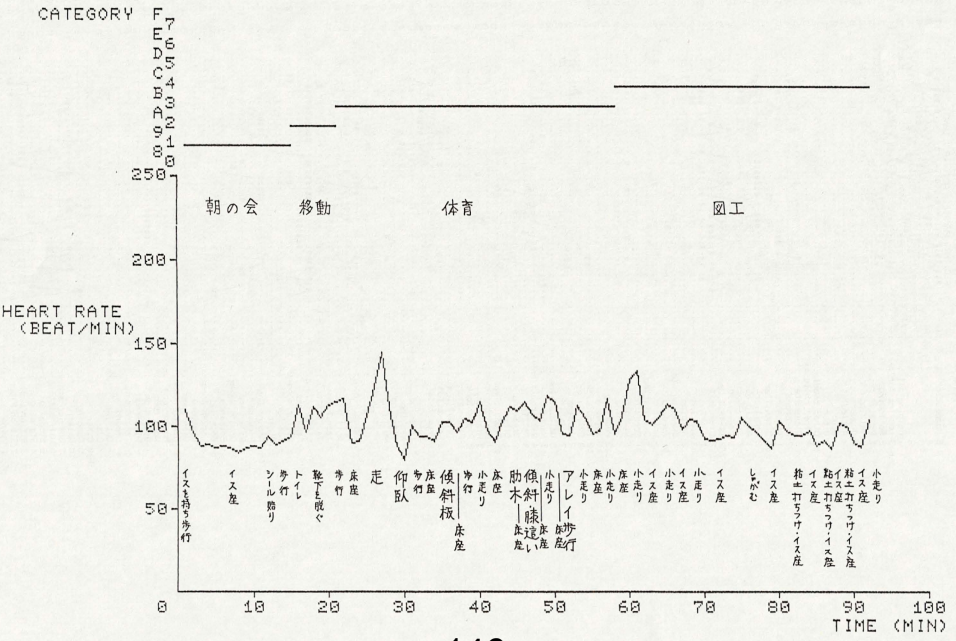


Noriyuki FUK m 20 Dec (Tues)



心拍活動水準

N.FUK m 8:03 (1988.12.20)



参　照

ダウンロード

藤井力夫（1994）：フランスの養護学校と日本の養護学校。

北海道教育大学教科教育学研究図書、第３巻、ｐｐ.36-58.