

2001 6

가

가

가

가

	.....	i
I.	.....	1
1.	.....	1
2.	.....	5
II.	.....	6
1.	.....	6
2.	.....	7
3.	.....	7
4.	.....	11
5.	.....	12
III.	.....	13
1.	.....	13
2.	.....	17
3.	.....	19
IV.	.....	29
1.	.....	29
2.	.....	30
V.	.....	34
	.....	36
	.....	40
	.....	50

1.	.....	8
2.	.....	9
3.	.....	13
4.	.....	14
6.	.....	18
7.	.....	19
8.	.....	20
9.	.....	21
10.	.....
	.....	22
11.	.....	23
12.	.....	26
13.	.....	27
14.	.....	28

1.	6
----	-------	---

1.	.....	40
2.	.....	41
3.	.....	42

, ,

.

.

Nordic

2001 3

. 2

,

184 ,

35 .

12

가 61.7%,

가 65.1%,

가 56.7% .

12

8

,

33.8%,

39.7%,

35.6% .

59.3% ,

,

.

76.3%가

48

,

1

80.5%

가 1가

2가

.

wax

, ()

.

.

,

가

가

가 ,

가 .

가 , 5

(6 10), (11 15) .

1 , 가 ,

가 , (wax) . 5

(6 10), (11 15) 가

.

가 가 .

I.

1.

가

가 ,

(Bureau of Labor Statistics)

가

가

1,800,000

가

600,000

가

(visual display terminal)

가

(

98-15)

가

가

.
. , , ,
, , ,
. , , , ,
, , , , ,
.

(Moon and Sauter, 1996). Hadler(1990)

가
Smith Carayon(1996) ,
, ,
. Carayon (1999)
, ,
. Skov (1996), Norlander Nordgren(1998) .

, (Pettersen, 1993; Jacobsen, 1996).

(, 1973).

(Pettersen, 1993).

, (burn out), ,

, 가

MMA(methylmethacrylate)

MMA

. 가 handpiece

가

(Hjortsberg, 1989).

(Pettersen, 1993).

가

1971

5,000 ,

가

가

가 가

가

가

2.

, ,

, ,

.

, . ,

,

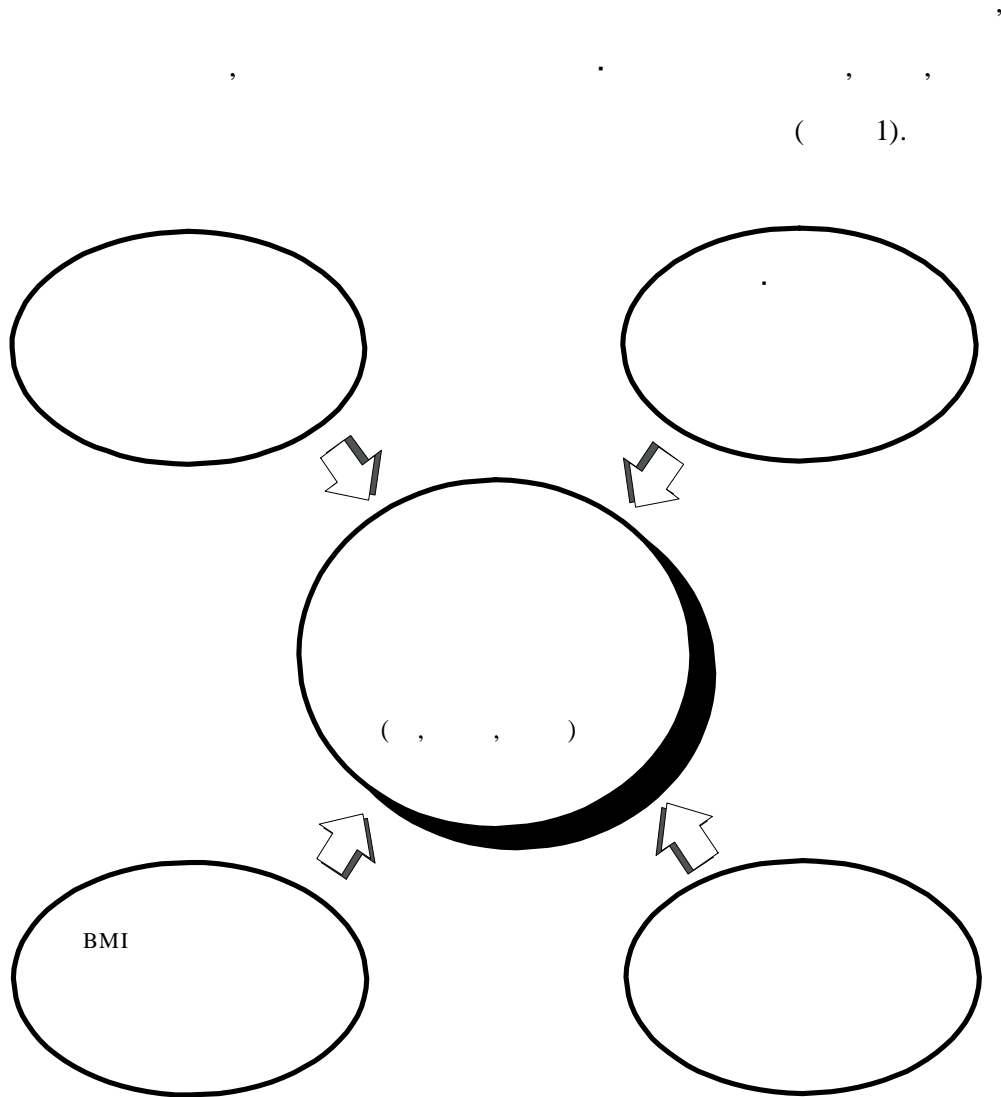
.

, ,

.

II.

1.



1.

2.

1999 5 (1999
5) , 3,991 1/3 가
, 1,368 가 1/4
406 가 .
가 1,315
500 . 22 2001 4
9 2001 4 13
.

3.

가.

, , , , ,
,
, , , , ,
, , , , ,
, , , , ,
, , , , ,
, , , , ,
, , , , ,
, , , , ,
, , , , ,
1 .

Leino Hänninen(1995)가
 가 (2), 가 가
 4 20 가 .
 3 15 가 .
 6 30 가 .
 3 15 가 .

2. .

	1	2	3	4	5

?

?

?

가 ?

()

2

	1	2	3	4	5
--	---	---	---	---	---

) (?

) (?

) (, ?

? ()

() ?

() ?

() ?

?

?

()

5.

SAS 6.12

t-test

²-test

III.

1. , , .

가.

212 가 82.9%, 17.1% ,
 30 가 41.5% 가 30
 12.7% 가 (3).

3. -

: (%)

30	31 40	41	
26(12.7)	8(3.9)	1(0.5)	35(17.1)
31(15.1)	85(41.5)	54(26.3)	177(82.9)
57(27.0)	93(45.4)	55(26.8)	212(100)

1, 2

가 2가 가

54.9% , 1가 45.1% .

가 41.1% 가 , 가 32.9% ,

26.0% . 1 48 가

76.3% , 1 19.5%

. 6 10 32.4% 가 , 5 (23.3%) ,

16 (24.2%) , 11 15 (20.1%) (4).

4.

		N	(%)
	1가	93	(45.1)
	2 8가	113	(54.9)
		57	(26.0)
		72	(32.9)
		90	(41.1)
	48	52	(23.7)
(1)	48	167	(76.3)
	1	36	(19.5)
	1	149	(80.5)
()	5	51	(23.3)
	6 10	71	(32.4)
	11 15	44	(20.1)
	16	53	(24.2)

5 .

3 .

5 .

: (%)

		1	2	3	4	5
?		25 (11.4)	52 (23.7)	123 (56.2)	10 (4.6)	9 (4.1)
	?	5 (2.3)	25 (11.4)	109 (49.8)	48 (21.9)	32 (14.6)
	?	16 (7.3)	55 (25.1)	107 (48.9)	30 (13.7)	11 (5.0)
가	?	49 (22.7)	75 (34.7)	74 (34.3)	14 (6.5)	4 (1.9)
		()				

: (%)

		1	2	3	4	5
()		42	58	85	20	14
	?	(19.2)	(26.5)	(38.8)	(9.1)	(6.4)
()		49	55	84	20	10
	?	(22.5)	(25.2)	(38.5)	(9.2)	(4.6)
()	(,	51	60	87	14	6
	?)	(23.4)	(27.5)	(39.9)	(6.4)	(2.8)
()		11	44	111	22	16
	?	(5.4)	(21.6)	(54.4)	(10.8)	(7.8)
()		24	45	97	28	7
	?	(11.9)	(22.4)	(48.3)	(13.9)	(3.5)
()		21	40	96	27	14
	?	(10.6)	(20.2)	(48.5)	(13.6)	(7.1)
()		18	50	104	16	12
	?	(9.0)	(25.0)	(52.0)	(8.0)	(6.0)
()		22	59	111	10	7
	?	(10.5)	(28.2)	(53.1)	(4.8)	(3.4)
()		57	54	80	17	3
	?	(27.0)	(25.6)	(37.9)	(8.1)	(1.4)

()

5

: (%)

	1	2	3	4	5
	5 (2.3)	16 (7.3)	89 (40.6)	75 (34.3)	34 (15.5)
?					
	35 (16.0)	33 (15.1)	72 (32.9)	62 (28.3)	17 (7.8)
?	22 (10.5)	27 (12.3)	99 (45.2)	57 (26.1)	14 (6.4)

2.

6, 7
 . 12 가 61.7%,
 가 65.1%, 가 56.7% (6). 12
 8
 , 가 39.7% 가 , 가 35.6%,
 33.8% (7).

6.

		N	(%)
		84	(38.4)
1	7	56	(25.6)
8	30	30	(13.7)
30	()	31	(14.2)
		13	(5.9)
		6	(2.3)
		71	(34.0)
1	7	40	(19.1)
8	30	36	(17.2)
30	()	35	(16.8)
		12	(5.7)
		15	(7.2)
		97	(44.3)
1	7	44	(20.1)
8	30	30	(13.7)
30	()	38	(17.4)
		10	(4.6)

7.

: (%)

8		12
N	(%)	
145	66.2	
74	33.8	
126	60.3	
83	39.7	
141	64.4	
78	35.6	

3.

가.

, 가

가

($p < 0.05$).

($p < 0.005$).

BMI, ,
(8).

1 , , , , ,
(9).

8.

: (%)

		(%)	(%)	(%)	(%)	(%)	(%)
		22(62.9)	13(37.1)	16(47.1)	18(52.9)	21(60.0)	14(40.0)
		123(66.9)	61(33.1)	110(62.9)	65(37.1)	120(65.2)	64(34.8)
	² (p-)	0.209	(0.647)	2.968	(0.085)	0.349	(0.555)
	30	31(54.4)	26(45.6)	28(51.9)	26(48.2)	30(52.6)	27(47.4)
	31- 40	65(69.9)	28(30.1)	58(65.2)	31(34.8)	69(74.2)	24(25.9)
	41	40(72.7)	15(27.3)	30(57.7)	22(42.3)	35(63.6)	20(36.4)
	² (p-)	5.178	(0.075)	2.568	(0.277)	7.357	(0.025)
BMI	25	115(66.8)	57(32.9)	101(60.5)	66(39.5)	112(65.1)	60(34.9)
	25	27(62.8)	16(37.2)	24(61.5)	15(38.5)	26(60.5)	17(39.5)
	² (p-)	0.254	(0.614)	0.015	(0.903)	0.323	(0.569)
		42(63.6)	24(36.4)	37(57.8)	27(42.2)	39(59.1)	27(40.9)
		103(67.3)	50(32.7)	89(61.4)	56(38.7)	102(66.7)	51(33.3)
	² (p-)	0.280	(0.597)	0.236	(0.627)	1.154	(0.283)
		7(70.0)	3(30.0)	8(80.0)	2(20.0)	7(70.0)	3(30.0)
	2, 3	128(67.4)	62(32.6)	110(60.8)	71(39.2)	123(64.7)	67(35.3)
	4	7(58.3)	5(41.7)	4(33.3)	8(66.7)	7(58.3)	5(41.7)
		3(42.9)	4(57.1)	4(66.7)	2(33.3)	4(57.1)	3(42.9)
	² (p-)		0.502*		0.150*		0.898*
		49(83.1)	10(16.9)	45(77.6)	13(22.4)	45(76.3)	14(23.7)
		76(63.9)	43(36.1)	61(55.0)	50(45.0)	79(66.4)	40(33.6)
		19(47.5)	21(52.5)	19(48.7)	20(51.3)	16(40.0)	24(60.0)
	² (p-)	13.997	(0.001)	10.728	(0.005)	14.184	(0.001)

* Fisher's Exact Test (2-Tail)

9.

: (%)

		(%)	(%)	(%)	(%)	(%)	(%)
1	6	61(64.2)	34(35.8)	58(63.7)	33(36.3)	60(63.2)	35(36.8)
	7 8	82(69.5)	36(30.5)	66(58.9)	46(41.1)	79(67.0)	39(33.0)
	9	2(33.3)	4(66.7)	2(33.3)	4(66.7)	2(33.3)	4(66.7)
	² (p-)		0.160*		0.320*		0.256*
		95(67.9)	45(32.1)	79(58.5)	56(41.5)	90(64.3)	50(35.7)
		50(63.3)	29(36.7)	47(63.5)	27(36.5)	51(64.6)	28(35.4)
	² (p-)	0.471	0.493	0.498	0.480	0.002	0.968
		65(61.9)	40(38.1)	53(52.5)	48(47.5)	66(62.9)	39(37.1)
		77(72.0)	30(28.0)	69(68.3)	32(31.7)	71(66.4)	36(33.6)
		3(42.9)	4(57.1)	4(57.1)	3(42.9)	4(57.1)	3(42.9)
	² (p-)		0.130*		0.071*		0.779*
		60(63.2)	35(36.8)	48(53.3)	42(46.7)	64(67.4)	31(32.6)
	(1 2)	60(66.7)	30(33.3)	55(64.7)	30(35.3)	56(62.2)	34(37.8)
		25(73.5)	9(26.5)	23(67.7)	11(32.3)	21(61.8)	13(38.2)
	(3)						
	² (p-)	1.218	(0.544)	3.280	(0.194)	0.654	(0.721)
		100(67.6)	48(32.4)	85(61.2)	54(38.8)	99(66.9)	49(33.1)
		45(64.3)	25(35.7)	40(58.0)	29(42.0)	41(58.6)	29(41.4)
	² (p-)	0.230	(0.632)	0.194	(0.659)	1.432	(0.231)
		36(67.9)	17(32.1)	32(65.3)	17(34.7)	31(58.5)	22(41.5)
		109(65.7)	57(34.3)	94(58.8)	66(41.3)	110(66.3)	56(33.7)
	² (p-)	0.092	(0.762)	0.673	(0.412)	1.059	(0.303)

* Fisher's Exact Test (2- Tail)

10 . 가
(p<0.05).

(p<0.01). (p<0.05). 가

10. .

					P-
11.13	2.77	11.11	2.65	0.953	
7.67	2.63	6.89	2.47	0.036	
15.38	4.55	15.63	5.34	0.716	
9.35	2.70	9.99	2.56	0.095	
10.88	2.82	11.01	2.45	0.082	
7.57	2.70	6.93	2.41	0.080	
15.16	4.77	15.72	4.91	0.413	
9.28	2.55	9.89	2.88	0.108	
11.06	2.78	11.23	2.62	0.665	
7.77	2.53	6.76	2.60	0.006	
15.78	4.38	14.91	5.49	0.234	
9.23	2.64	10.18	2.61	0.011	

11 .

가 1가

2가

($p < 0.05$).

($p < 0.05$)

wax , . ,

($p < 0.005$).

11 .

: (%)

	(%)	(%)	(%)	(%)	(%)	(%)
1가	63(71.6)	25(28.4)	48(57.1)	36(42.9)	64(72.7)	24(27.3)
2 8가	73(60.3)	48(39.7)	70(60.3)	46(39.7)	69(57.0)	52(43.0)
² (p-)	2.842	(0.092)	0.207	(0.650)	5.429	(0.020)
	41(71.9)	16(28.1)	34(61.8)	21(38.2)	37(64.9)	20(35.1)
	47(65.3)	25(34.7)	41(60.3)	27(39.7)	46(63.9)	26(36.1)
	57(63.3)	33(36.7)	51(59.3)	35(40.7)	58(64.4)	32(35.6)
² (p-)	1.194	(0.550)	0.089	(0.957)	0.015	(0.993)

()

: (%)

		(%)	(%)	(%)	(%)	(%)	(%)
	48	35(70.0)	15(30.0)	30(61.2)	19(38.8)	34(68.0)	16(32.0)
(1	) 48	108(64.7)	59(35.3)	94(59.5)	64(40.5)	105(62.9)	62(37.1)
	² (p-)	0.486	(0.486)	0.047	(0.829)	0.439	(0.508)
	1	23(63.9)	13(36.1)	19(59.4)	13(40.6)	22(61.1)	14(38.9)
	1	101(67.8)	48(32.2)	90(62.9)	53(37.1)	98(65.8)	51(34.2)
	² (p-)	0.199	(0.655)	0.141	(0.707)	0.276	(0.599)
()	5	27(52.9)	24(47.1)	24(50.0)	24(50.0)	25(49.0)	26(51.0)
	6 10	47(66.2)	24(33.8)	43(63.2)	25(36.8)	47(66.2)	24(33.8)
	11 15	33(75.0)	11(25.0)	30(69.8)	13(30.2)	34(77.3)	10(22.7)
	16	38(71.7)	15(28.3)	29(58.0)	21(42.0)	35(66.0)	18(34.0)
	² (p-)	6.247	(0.100)	4.092	(0.252)	8.603	(0.035)
		98(66.2)	50(33.8)	90(61.2)	57(38.8)	96(64.9)	52(35.1)
		47(66.2)	24(33.8)	41(60.3)	27(39.7)	45(63.4)	26(36.6)
	² (p-)	0.000	(0.998)	0.014	(0.905)	0.046	(0.830)
		81(63.8)	46(36.2)	72(59.0)	50(41.0)	78(61.4)	49(38.6)
		64(69.6)	28(30.43)	54(62.1)	33(37.9)	63(68.5)	29(31.5)
	² (p-)	0.798	(0.372)	0.198	(0.657)	1.160	(0.282)
		90(67.2)	44(32.8)	77(60.2)	51(39.8)	92(68.7)	42(31.3)
		55(64.7)	30(35.3)	49(60.5)	32(39.5)	49(57.7)	36(42.4)
	² (p-)	0.141	(0.708)	0.002	(0.961)	2.749	(0.097)

()

: (%)

	(%)	(%)	(%)	(%)	(%)	(%)
wax	69(68.3)	32(31.7)	55(57.3)	41(42.7)	76(75.3)	25(24.8)
	76(64.4)	42(35.6)	71(62.8)	42(37.2)	65(55.1)	53(44.9)
² (p-)	0.372	(0.542)	0.665	(0.415)	9.648	(0.002)
	104(69.3)	46(30.7)	86(60.1)	57(39.9)	106(70.7)	44(29.3)
	41(59.4)	28(40.6)	40(60.6)	26(39.4)	35(50.7)	34(49.3)
² (p-)	2.076	(0.150)	0.004	(0.949)	8.196	(0.004)
	93(69.4)	41(30.6)	75(59.1)	52(40.9)	93(69.4)	41(30.6)
	52(61.2)	33(38.8)	51(62.2)	31(37.8)	48(56.5)	37(43.5)
² (p-)	1.573	(0.210)	0.205	(0.651)	3.793	(0.051)
	102(69.4)	45(30.6)	83(59.7)	56(40.3)	104(70.8)	43(29.3)
	43(59.7)	29(40.3)	43(61.4)	27(38.6)	37(51.4)	35(48.6)
² (p-)	2.018	(0.155)	0.057	(0.811)	7.899	(0.005)

4.

, , , .

12 .

(), (), .

가 ,
 가 .
 12.

	(95% CI)
(1=)	1.589 (0.551- 4.581)
	0.993 (0.901- 1.094)
(1=)	0.490 (0.229- 1.048)
(1= 1)	1.049 (0.638- 1.725)
	1.0
	2.937 (1.222- 7.055)
	5.962 (2.142- 16.592)
	0.891 (0.787- 1.008)
	1.016 (0.894- 1.156)
1 5	1.0
6 10	0.429 (0.164- 1.112)
11 15	0.299 (0.078- 1.142)
16	0.361 (0.060- 2.174)

CI: confidence interval

13 .
 (), (), (6 10),
 (11 15) .

가

5

(6 10) , (11 15)

13.

	(95% CI)
(1=)	0.736 (0.264- 2.053)
	1.054 (0.959- 1.159)
(1=)	0.481 (0.225- 1.031)
(1= 1)	0.960 (0.586- 1.573)
	1.0
	3.065 (1.330- 7.061)
	4.004 (1.479- 10.840)
	1.091 (0.966- 1.233)
	0.887 (0.782- 1.005)
	1.007 (0.888- 1.143)
(1=2가)	0.753 (0.391- 1.448)
1 5	1.0
6 10	0.322 (0.122- 0.853)
11 15	0.262 (0.070- 0.984)
16	0.280 (0.047- 1.654)

CI: confidence interval

14 .

, (), , 6 10 , 11

15 , wax .
 1 ,
 가 , 가 , wax
 .
 5 6 10 , 11 15
 가 .

14.

	(95% CI)
(1=)	0.383 (0.113- 1.295)
	1.042 (0.943- 1.152)
(1=)	0.624 (0.275- 1.415)
(1= 1)	1.793 (1.049- 3.065)
	1.0
	1.229 (0.526- 2.876)
	4.925 (1.766- 13.735)
	0.831 (0.727- 0.950)
	1.107 (0.971- 1.262)
1 5	1.0
6 10	0.212 (0.073- 0.620)
11 15	0.105 (0.024- 0.453)
16	0.209 (0.032- 1.360)
wax	3.673 (1.458- 9.253)
.	0.753 (0.233- 2.437)
()	1.425 (0.460- 4.414)

CI: confidence interval

IV.

1.

VDT

가

(Brigham, 1975; Sinclair, 1975).

2.

(39.7%), (35.6%), (33.8%)
30.1%, 30.8%, 47.9%

59.3%가 , ,
(39%) (68%)

가
30 가 가
가 가

가

가

survivor bias

가

Ohlsson (1989)

가 OR가 가 (p=0.01)

가

가

(Bernard , 1994; Hales , 1994;
Johansson, 1994; Chiang , 1993). Hagberg (1987)

가

reporting bias가

(Armstrong , 1993; Hales , 1994).

가

가

Juntura(1994)

(Finkelstein, 1995; Frymoyer, 1983). Toomingas
(1991), , , ,
가

, Kelsey (1990) .
, , 가
가 .

48

. 가
가 16

. 가
가

, , ()
, wax

가

가

Linton (1989)

2.85 (95% CI

1.28-6.32)

3.32 (95% CI 1.53-7.23)

Bonger (1993)

V.

2001 5 500 2001 4 21
가
219
39.7%, 35.6% 33.8%,
59.3%가
가 1가
($p < 0.05$).
($p < 0.05$). 48
가 wax , ,
($p < 0.001$).
가

가 .

가

($p < 0.05$).

가 ,

가 .

가 , 5 (6 10)

, (11 15) .

1 , 가 , 가

, wax , 5

6 10 , 11 15 가

.

, BMI, ,

,

가 ,

, 가

. 5 (6 10) , (11 15

) .

가 , wax

, 15 5

6 10 , 11 15 가

.

가 가 .

- . . 1973
- , 가 2000.
- Armstrong TJ, Buckle P, Fine LJ, et al. A conceptual model for work-related neck and upper-limb musculoskeletal disorders. *Scand J Work Environ Health* 1993; 19(2): 73-84.
- Bernard B, Sauter S, Fine SJ, et al. Job task and psychosocial risk factors for work-related musculoskeletal disorders among newspaper employees. *Scand J Work Environ Health* 1994; 15: 81-88.
- Bongers PM, deWinter CR, Kompier MAJ, et al. Psychosocial factors at work and musculoskeletal disease. *Scand J Work Environ Health* 1993; 18(1): 35-40.
- Brigham, FR. Some quantitative consideration in questionnaire design and analysis. *Appl Erg* 1975; 6: 90-96
- Carayon P, Smith MJ, Haims MC. Work organization, job stress, and work-related musculoskeletal disorders. *Human Factors* 1999; 41(4): 644-663.
- Chiang H, Ko Y, Chen S, et al. Prevalence of shoulder and upper-limb disorders among workers in the fish-processing industry. *Scand J Work Environ Health* 1993; 19(2); 126-131.

- Finkelstein MM, Back pain and parenthood. *Occup Environ Med* 1995; 52(1): 51-53.
- Frymoyer JW, Pope MH, Clements JH. Risk factors in low back pain. *J Bone Joint Surg* 1983; 65A: 213.
- Hadler NM. Cumulative trauma disorders - An iatrogenic concept. *J Occup Med* 1990; 32(1): 38-41.
- Hales TR, Sauter SL, Petersen MR, et al. Musculoskeletal disorders among visual display terminal users in a telecommunications company. *Ergonomics* 1994; 37(10): 1603- 1621.
- Hagberg M, Wegman DH. Prevalence rates and odds ratios of shoulder-neck diseases in different occupational groups. *Br J Ind Med* 1987; 44(9): 602-610.
- Hjortsberg U, Rosen I, Orbek P, et al. Finger receptor dysfunction in dental technicians exposed to high-frequency vibration. *Scand J Work Environ Health* 1989; 15: 339-344.
- Jacobsen N, Derand T, Petterson HA. Profile of work-related health complaints among Swedish laboratory technicians. *Community Dental Oral Epidemiol* 1996; 24: 138- 144.
- Johansson JA, Rubenowitz S. Risk indicators in the psychosocial and physical work environment for work-related neck, shoulder, and low back symptoms: a study among blue and white collar worker in eight companies. *Scand J Rehabil Med* 1994; 26: 131- 142.

- Juntura VE, Riihimaki H, Tola S, et al. Neck trouble in machine operating, dynamic physical work and sedentary work: a prospective study on occupational and individual risk factors. *J Clin Epidemiol* 1994; 47(12): 1411- 1422.
- Kelsey JL, Golden AL, Mundt DJ. Low back pain/prolapsed lumbar intervertebral disc. *Epidemiology of Rheumatic Disease* 1990; 16(3): 699-716.
- Kuorinka I, Jonsson B, Kilbom A, et al. Standardized Nordic questionnaires for the analysis of musculoskeletal symptoms. *Appl Erg* 1987; 18(3): 233-237.
- Leino PI, Hänninen V. Psychosocial factors at work in relation to back and limb disorders. *Scand J Work Environ Health* 1995; 21: 134- 142.
- Linton SJ, Kamwendo K. Risk factors in psychosocial work environment for neck and shoulder pain in secretaries. *J Occup Med* 1989; 31(7): 609-613
- Moon, SD and Sauter SL. *Beyond biomechanics: Psychosocial aspects of musculoskeletal disorders in office work*. London: Taylor & Francis, 1996.
- Norlander S, Nordgren B, Clinical symptoms related to musculoskeletal neck-shoulder pain and morbidity in the cervico-thoracic spine. *Scand J Rehab Med* 1998; 30: 243-251.

- Ohlsson K, Attewell RG, Skerfving S. Self-reported symptoms in the neck and upper limbs of female assembly workers. *Scand J Work Environ Health* 1989; 15(1): 75-80.
- Pettersen AH, Jacobsen NA. Self-reported occupation related health complaints among dental laboratory technicians. *Quintessence Int.* 1993; 24: 409-415.
- Sinclair MA. Questionnaire design. *Appl Erg* 1975; 6: 73-80
- Skov T, Borg V, Ørhede E. Psychosocial and physical risk factors for musculoskeletal disorders of neck, shoulders, and lower back in salespeople. *Occup Environ Med* 1996; 53: 351-356
- Smith MJ, Carayon P. Work organization, stress, and cumulative trauma disorders. In Moon SD & Sauter SL, *Beyond biomechanics: Psychosocial aspects of musculoskeletal disorders in office work.* London: Taylor & Francis, 1996; 23-42
- Toomingas A, Hagberg M, Jorulf L, et al. Outcome of the abduction external rotation test among manual and office workers. *Am J Ind Med* 1991; 19(2): 215-227.

1.

	N	(%)
	35	(16.0)
	184	(84.0)
30	57	(27.8)
31- 40	93	(45.4)
41	55	(26.8)
	66	(30.1)
	153	(69.9)
	10	(4.6)
2, 3	190	(86.8)
4	12	(5.5)
	7	(3.2)

2.

: (%)

		N	(%)
BMI	25	172	(80.0)
	25	43	(20.0)
1	6	95	(43.4)
	7 8	118	(53.9)
	9	6	(2.7)
		140	(63.9)
		79	(36.1)
		105	(47.9)
		107	(48.9)
		7	(3.2)
		95	(43.4)
		90	(41.1)
	(1 2)		
		34	(15.5)
	(3)		
		148	(67.9)
		70	(32.1)
		53	(24.2)
		166	(75.8)
		59	(27.1)
		119	(54.6)
		40	(18.3)

3.

?

가

가

2001 4 17

가

: 136-703

1

(02) 940-2840
Fax (02) 909-3502

A.

.

(A91)

?

2 (500cc 1)

2 (500cc 2)

2 1 (500cc 4)

2 2

(500cc 8)

(A1) 19 _____

(A2) _____ ?

(A21) _____ cm (A22) _____ kg

(A10) _____ ?

(A3) _____ ?

A 101 1 _____

A 102 _____

: A 103 _____

(A4) _____ ?

(A11) _____ ?

(A5) _____ ?

(A12) _____ ?

$\frac{2}{4}$ 3

(A6) 1 _____ ?

(A13) _____ :

6
7 8
9

(A7) _____ ?

(A14) _____ ?

(A8) _____ ?

(A15) 1 _____ ?

A 81 _____

A 82 _____

A 83 _____ 가

A 84 _____

A 85 _____

(A16) _____ ?

_____ / 1

(A9) _____ ?

(A17) _____ ?

(1 2)

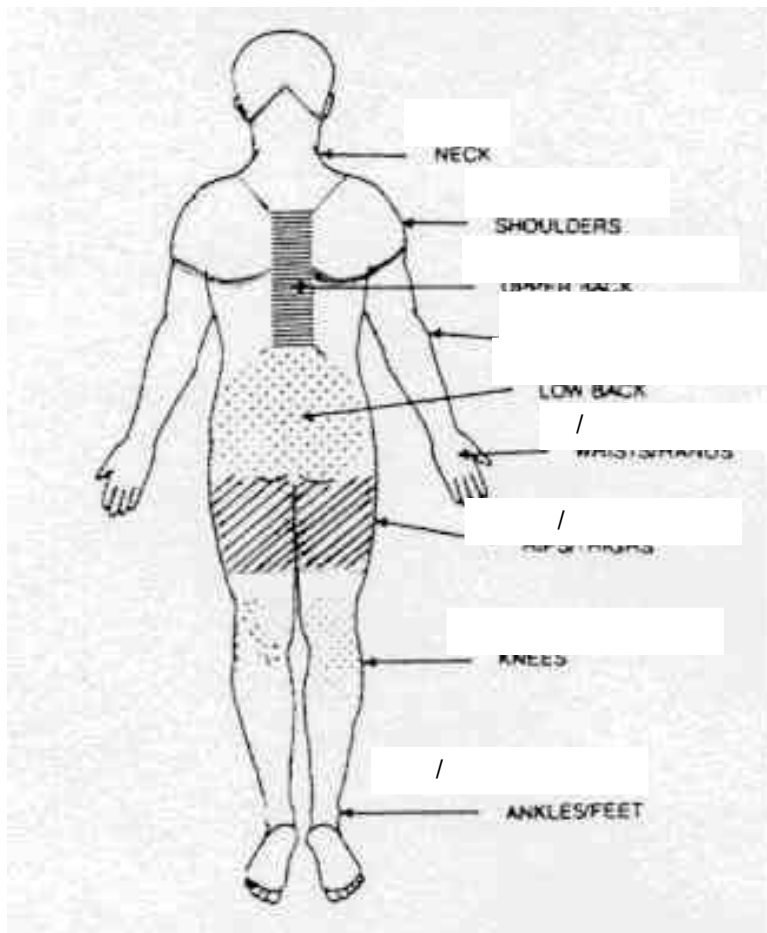
(1 2)

(3)

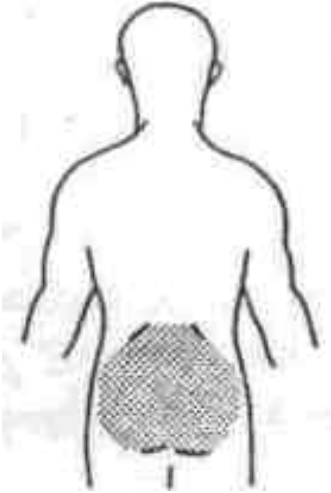
Questionnaire about trouble with the locomotive organs

✓

()



B.



1. , ,
?

2 8

2. ?

3. ?

4. 12 , ,
_____ ?
0
1 7
8 30
30

4 "0"
5 8

5. 12 ?

a. ()

b. 가

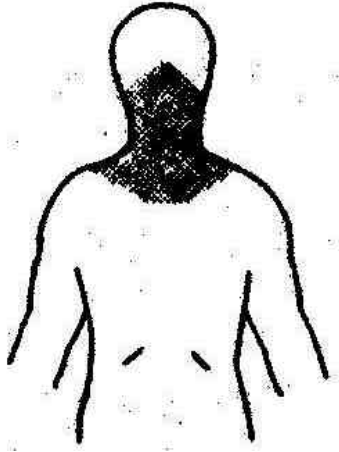
6. 12 , , ,
_____ (_____)
_____ ?

0 1 7
8 30 30

7. 12 , , , ,
 , , , , ?

8. 7 , ,
_____ ?

C.



1. , ,
?

2 8

2. ?

3. ?

4. 12 , ,
_____ ?

0

1 7

8 30

30

4
5 8

“0 ”

5. 12 , ,
?

a. ()

b. 가

6. 12 , , ,
_____ ()
_____)
?

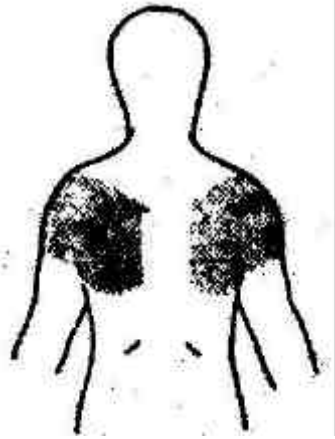
0 1 7

8 30 30

7. 12 , , , ,
 , , , ,
?

8. 7 , , ,
_____ ?

D.



1. , ,
?

2 8

2. ?

3. , ,
?

4. 12 , ,
?
.
.
.

4 “ ”

5. 12 , ,
?
0

1 7

8 30

30

6. 12 , ,
?

a. ()

b. 가

7. 12 , ,
?
)

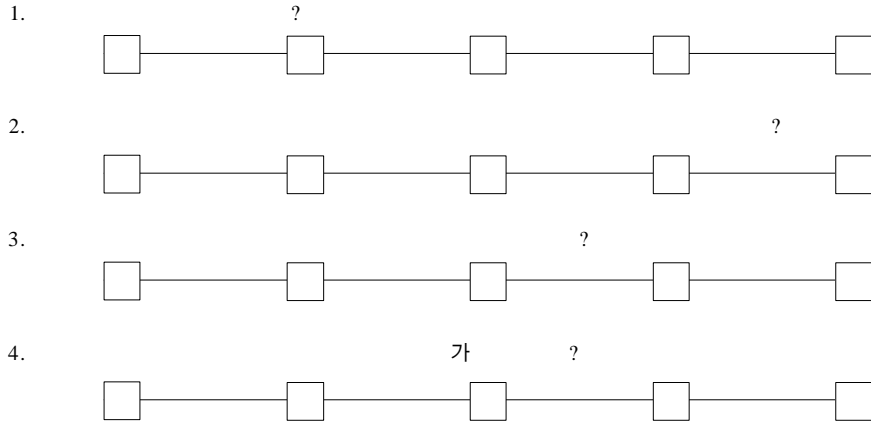
0 1 7
8 30 30

8. 12 , , , ,
 , , , , ?

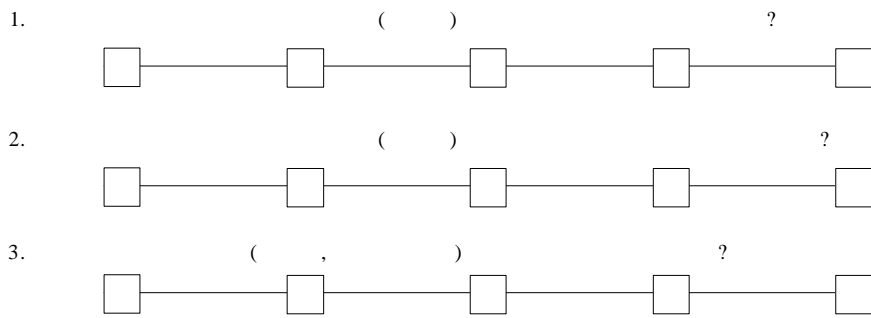
5 9 9. 7 , ,
?
.
.
.

√

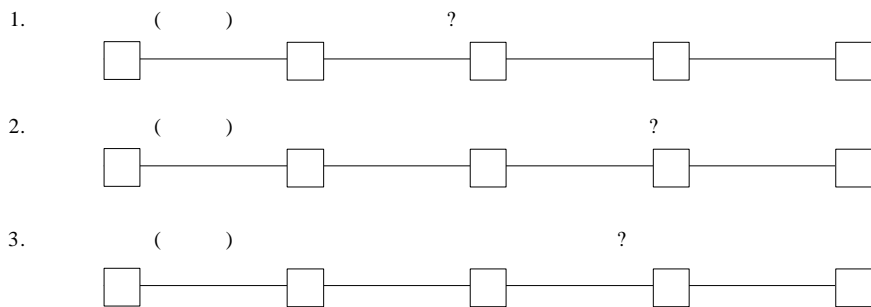
E. (work content)

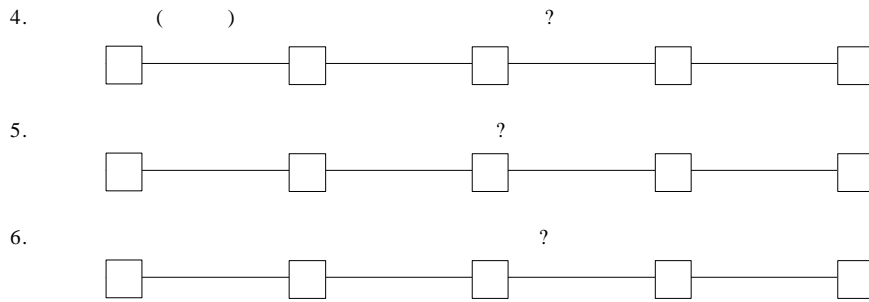


F. (work control)

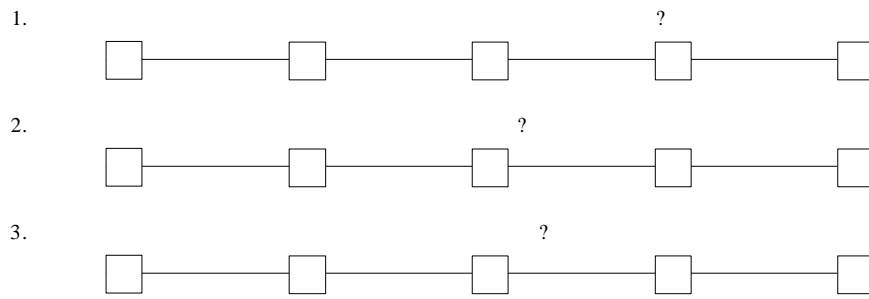


G. (social relations)





H. (overstrain)



I 가 가 가 () ,
 (가 가) .
 1. ? (1) wax

		()					
		1 (가 가)					
			1 5	6 10	11 15	16 20	21
1	D1 _____	D11 (가)					
2	D2 _____	D22 (가)					
3	D3 _____	D33 ()					
4	wax D4 _____	D44 ()					
5	. D5 _____	D55 ()					
6	D6 _____	D66 ()					
7	() D7 _____	D77 base					

8 2 6가 9 7가

D88

ABSTRACT

Factors on prevalence of musculoskeletal disorders among dental technicians in Korea

Joon-Suk Lee
Graduate school of
Health Science and
Management
Yonsei University

(Directed by Professor Chung Mo Nam, Ph. D.)

This study was conducted to determine the prevalence of musculoskeletal complaints of the neck, shoulders, and low back among dental laboratory technicians in Seoul Korea, and to investigate the relation between these complaints and work related and psychosocial variables.

The study was based on the Nordic Musculoskeletal Questionnaire (NMQ), a self-administrated questionnaire, which deals with musculoskeletal symptoms, psychosocial factors, and job factors and which was supplemented with additional questions regarding

psychosocial and job factors. A questionnaire was mailed to randomly selected 500 dental laboratory technicians in Seoul, Korea. Among them, 219 dental laboratory technician filled out the questionnaires and returned them. A questionnaire was completed by 184 male and 35 female.

The results were as follows;

Of the 219 technicians who answered the questionnaire, 61.7% felt subjective musculoskeletal symptoms in neck, 65.1% in shoulders, 56.7% in low back during the preceding 12 months. Neck pain lasting for more than 8 days within the previous 12 months was reported by 74 technicians(33.8%). Shoulders pain lasting for more than 8 days within the previous 12 months was reported by 83 technicians(39.7%). Low back pain lasting for more than 8 days within the previous 12 months was reported by 78 technicians(35.6%). 124 technicians(59.3%) had experienced trouble some time during the preceding 12 months in neck, shoulders, and low back.

In bivariate analyses, of the complexity of work, the low back symptom rates were higher in the group carrying out simple work than the group carrying out complex work. For the type of work, the low back symptom rates were higher in the group doing wax work and plaster work.

For the psychosocial factors, there is no significant difference in work

content and social relationships. Higher work control were associated with the symptom rates in neck and low back. Higher overstrain were associated with the symptom rates in low back.

In multivariate analyses, perceived poor health status, high work control were associated with neck symptoms. perceived poor health status were related to shoulders symptoms. In comparing years on the job, under 5 years, 6 10 years or 11 15 years, the under 5 years reported a high prevalence of shoulders symptoms than the other groups. Alcohol consumption(over 1 times per week), perceived poor health status, high work control, and doing wax work were related to low back symptoms. In comparing years on the job, under 5 years, 6 10 years or 11 15 years, the under 5 years reported a high prevalence of low back symptoms than the other groups.

From these results it may be concluded that future research of health risks of dental laboratory work should have a wider focus than the relation between physical and psychosocial factors and musculoskeletal complaints with ergonomic health effect analysis.