

Supplementary Table 1. Exposure time proportion to musculoskeletal risk factors by occupation and area according to the order of the 7th KSCO Korean job title

No.	KSCO job categories	UE, neck	LB	LE	No.	KSCO job categories	UE, neck	LB	LE
1	Domestic chores and infant rearing helpers	Medium	Medium	Medium	76	Fire and emergency management engineers and safety professionals	Medium	Low	Medium
2	Nurses	Medium	Low	High	77	Sports and recreation related professionals	Medium	Low	High
3	Appraisers, technical sales representatives, brokers and related workers	Low	Low	Low	78	Visual and performing artists	Medium	Low	Low
4	Building concierges and ticket examiners	Low	Low	Medium	79	Culinary arts related professionals	Low	High	High
5	Construction related technical workers	High	High	High	80	Food and beverage service workers	Medium	Medium	High
6	Construction and mining laborers	High	High	High	81	Food processing related machine operators	High	Medium	High
7	Construction and mining machines operators	High	Medium	Medium	82	Pharmacists and oriental pharmacists	Low	Low	High
8	Construction, electricity and production related managers	Medium	Low	Medium	83	Fishery related workers	High	High	High
9	Construction structure related technical workers	High	High	High	84	Leisure services workers	Low	Low	Medium
10	Construction finishing related technical workers	High	High	High	85	Travel agent, information and reception clerks	Low	Low	Low
11	Architectural practitioners, construction engineers and technicians	Medium	Low	Low	86	Research, education and legal services related managers	Low	Low	Low
12	Business administration and office clerks	Low	Low	Low	87	Drama, film and moving image professionals	Low	Low	Medium
13	Police, fire fighting and prison related workers	Low	Low	Low	88	Dietitians	Low	Low	Medium
14	Guards and security related workers	Low	Low	High	89	Sales representatives	Low	Low	Low
15	Gauge reading, money collecting and parking control related workers	Medium	Low	High	90	Welders	High	High	Medium
16	Customer service and other office clerks	Low	Low	Low	91	Transport services workers	Medium	Low	High
17	Customer service managers	Low	Low	Medium	92	Transport equipment mechanics	Medium	Medium	Medium
18	Craftsmen and metalsmiths	High	Low	Medium	93	Transportation vehicle and machine related assemblers	High	Medium	High
19	Metal work machinery operators	High	Medium	High	94	Horticultural and landscape workers	Medium	Medium	High
20	Metal and material engineers and technicians	Low	Low	Low	95	Kindergarten teachers	Low	Low	Medium
21	Metal machinery parts assemblers	High	Medium	High	96	Beverage product related machine operators	Medium	Low	Medium

22	Finance and insurance professionals	Low	Low	Low	97	Food preparation related elementary workers	High	Medium	High
23	Finance clerks	Low	Low	Low	98	Medical and diagnosis treatment professional	Medium	Low	Low
24	Die and mold makers, metal casting workers and forge hammersmiths	High	Medium	High	99	Garment related workers	High	Low	Low
25	Mechanical and robot engineers and technicians	Medium	Low	Low	100	Legislators, senior government officials and senior officials of public organization	Low	Low	Low
26	Machinery equipment fitters and mechanics	Medium	Medium	Medium	101	Liberal arts and social science professionals	Low	Low	Low
27	Senior corporate officers	Low	Low	Low	102	HR & business administrations professional	Low	Low	Low
28	Other construction, electricity and production related managers	Low	Low	Low	103	Printing and photo development related machine operators	Medium	Medium	High
29	Other engineering professionals and related workers	Medium	Low	Low	104	Forestry related workers	Medium	High	High
30	Other educational professionals	Low	Low	Low	105	Automated assembly line operators and industrial robot operators	High	Medium	High
31	Other machine operators	High	Medium	High	106	Automobile drivers	High	High	Low
32	Other technical workers	Medium	Low	High	107	Automobile mechanics	Medium	Medium	High
33	Other caregiving, health and personal service workers	Low	Low	Low	108	Writers, journalists, and related professionals	Low	Low	Low
34	Other service related elementary workers	Medium	Low	High	109	Crop growers	Medium	Medium	Medium
35	Other food processing related machine operators	High	Medium	High	110	Recycling machine and incinerator operators	Medium	Low	Medium
36	Other professional services managers	Low	Low	Low	111	Electrical and electronic equipment operators	Medium	Low	Medium
37	Other sales and customer service managers	Low	Low	Low	112	Electrical, electronic parts and products production equipment operators	Medium	Low	Medium
38	Cooling and heating related equipment operators	Medium	Low	Medium	113	Electrical, electronic parts and products assemblers	High	Low	Medium
39	Agriculture, forestry and fishery related elementary workers	High	High	Medium	114	Electrical, electronic engineers and technicians	Low	Low	Low
40	College professors and instructors	Low	Low	High	115	Electric and electronic machine fitters and repairers	Medium	Medium	Medium
41	Data and network specialists	Medium	Low	Low	116	Electricians	Medium	Medium	High
42	Painting and coating machine operators	High	High	High	117	Information system developers and web masters	Low	Low	Low
43	Caregiving and health service workers	Low	Medium	Medium	118	Information and communications related managers	Low	Low	Low
44	Designers	Medium	Low	Low	119	Information and communications technology equipment fitters and repairers	High	Medium	Medium

45	Marketing, advertising and public relations managers	Low	Low	Low	121	Pipe and sheet metal makers	Medium	High	High
46	Store sales workers	Medium	Low	High	122	Production related elementary workers	High	Medium	High
47	Wood and paper related machine operators	High	Medium	High	123	Cooks	Medium	Medium	High
48	Wood and furniture, musical instrument and signboard related trade occupations	Medium	Medium	High	124	Religious activities related workers	Low	Low	Low
49	Liberal arts, technical and arts instructors	Low	Low	Medium	125	Metal casting and metal processing related operators	High	High	High
50	Cultural art planners and agents	Low	Low	Low	126	Textile and shoe related machine operators and assemblers	High	Medium	High
51	Broadcasting, publishing and video related managers	Low	Low	Low	127	Mining and civil engineering related technical workers	High	High	High
52	Freight-handling equipment operators	High	High	High	128	Locomotive and train electric drivers	High	Low	Low
53	Hairdressing related service workers	High	Low	High	129	Freight train related workers	Medium	Low	Low
54	Power generation and distribution equipment operators	Medium	Low	Medium	130	Cleaners and sanitation workers	Medium	Medium	High
55	Door to door and street sales related workers	Low	Low	Medium	131	Livestock and stockbreeding related workers	Medium	Medium	High
56	Broadcasting and telecommunications equipment related fitters and repairers	High	High	High	132	Therapists, pathologists and medical technologists	Medium	Low	Medium
57	Plumbers	Medium	Medium	High	133	Computer system and application software developers	Low	Low	Low
58	Deliverers	Medium	High	High	134	Computer hardware and telecommunication engineering professionals	Low	Low	Low
59	Legal and inspection clerks	Low	Low	Low	135	Statistical service related clerks	Low	Low	Low
60	Legal professionals	Low	Low	Low	136	Mobile telecommunication related sales workers and telesales workers	Low	Low	Low
61	Health and social welfare related managers	Low	Low	Low	137	Sales related elementary workers	Medium	Medium	High
62	Health and medical service related workers	Medium	Low	Medium	138	Sales and transport managers	Low	Low	Low
63	Insurance and finance managers	Low	Low	Low	139	Loading and lifting elementary workers	High	High	High
64	Non-metal products production machine operator	High	Medium	High	140	School teachers	Low	Low	High
65	Secretaries and administrative assistants	Low	Low	Low	141	Curators, librarians and archivists	Low	Low	Low
66	Social welfare service related workers	Low	Low	Low	142	Aircraft pilots, ship engineers, controllers	Medium	Low	Low

67	Product planning, public relations and survey professionals	Low	Low	Low	143	Public and business administration managers	Low	Low	Low
68	Rental sales workers	Low	Low	Medium	144	Administrative clerks	Low	Low	Low
69	Water treatment plant operators	Medium	Low	Medium	145	Administration professionals	Low	Low	Low
70	Biological and natural science related technicians	Low	Low	Low	146	Wedding ceremony and funeral service workers	Low	Low	Medium
71	Petroleum and chemical material processing machine operators	Medium	Medium	Medium	147	Chemical, rubber and plastic production machine operators	High	Medium	High
72	Ship workers and related workers	High	High	High	148	Chemical engineers and technicians	Low	Low	Low
73	Textile and leather related workers	High	High	Medium	149	Environmental, cleaning, and protective service related manager	Low	Low	Low
74	Textile production and processing machine operators	High	Medium	High	150	Environment, gas and energy engineers and technicians	Medium	Low	Medium
75	Laundry related machine operators	High	Medium	High	151	Accounting and book-keeping clerks	Low	Low	Low

KSCO: Korean Standard Classification of Occupations; UE: upper extremity; LB: lower back; LE: lower extremity.