

Supplemental material

Table I – Job-exposure matrix developed to assess radial nerve entrapment related biomechanical exposure in the construction worker cohort. All ergonomic factors were coded (1-low, 2-moderate, 3-high) and vibrational factors were coded (1-none, 2-acceptable, 3-high), except, frequency of leaning on the elbows and of shocks during HAV which were graded dichotomously (1-no, 3-yes).

	GripF	UEload	fElbow FE	fWrist FE	fHand Tool	fStatic	Wrist Ext	Elbow Ext	Posture Tool	Lean Elb	HAV	HA-fShock
Asphalt workers	1	2	2	1	1	1	1	1	1	1	1	1
Brick layers	2	2	3	3	3	1	2	1	1	1	1	1
Concrete workers	3	3	2	1	3	2	1	1	3	1	3	3
Crane operators	1	1	1	3	1	3	2	1	1	1	1	1
Drivers	1	1	1	1	1	3	2	1	1	3	1	1
Electricians	2	2	1	2	3	3	2	2	3	3	2	3
Floor layers	2	2	1	1	2	1	1	1	2	1	2	1
Foremen	1	1	1	1	1	1	1	1	1	1	1	1
Glaziers	3	3	1	1	1	1	1	2	1	1	1	1
Ground prep	2	2	1	1	2	1	1	1	1	1	1	1
Heavy machinery operators	1	1	1	1	1	3	2	1	1	3	1	1
Insulators	2	2	1	1	2	2	1	1	2	1	2	1
Painters	2	2	3	3	3	1	1	3	1	1	1	1
Plumbers	3	2	2	2	3	3	1	1	3	3	1	1
Refrigerator technicians	2	2	1	1	2	2	1	1	2	3	2	3
Repairers	2	2	1	1	2	2	1	1	2	3	3	3
Rock blasters	3	3	1	1	3	3	1	1	3	1	3	3
Roofers	2	2	2	1	3	2	1	1	1	1	1	1
Sheet-metal workers	3	3	1	1	3	2	1	1	3	1	2	3
White collar workers	1	1	1	1	1	2	1	1	1	3	1	1
Wood workers	3	3	3	3	3	2	2	2	3	1	2	1

GrpF - Intensity of hand grip force; UEload - Intensity of upper extremity load; fElbowF-E - Frequency of repetitive elbow flexion and extension work; fWristF-E - Frequency of repetitive wrist flexion and extension work; fHandTool - Frequency of hand-held tool use; fStatic - Frequency of upper extremity static work; WristExt - Frequency of full wrist extension; ElbowExt - Frequency of full elbow extension; PostureTool - Frequency of using a hand held tool in a fixed position; LeanElb - Frequency of leaning on the elbow; HAV - Magnitude of hand-arm vibration; HA-fShock - Frequency of impact shocks during HAV

Table II –Spearman correlation coefficients assessing the relationship between pairs of biomechanical exposure factors. Individual factors with correlations ≥ 0.65 were grouped into *exposure scores*.

	GripF	UEload	fElbowFE	fWristFE	fHandTool	fStatic	WristExt	ElbowExt	fPostureTool	LeanElb	HAV	HA.fShock
GripF	1											
UEload	0.92	1										
ElbowFE	0.58	0.59	1									
WristFE	0.41	0.39	0.79	1								
fHandTool	0.78	0.74	0.59	0.63	1							
fStatic	0.29	0.14	-0.18	0.08	0.37	1						
WristExt	0.17	0.26	0.29	0.62	0.34	0.44	1					
ElbowExt	0.24	0.35	0.53	0.8	0.54	0.04	0.54	1				
PostureTool	0.81	0.75	0.27	0.33	0.77	0.63	0.4	0.27	1			
LeanElb	-0.24	-0.43	-0.43	-0.12	-0.04	0.72	0.18	-0.06	0.13	1		
HAV	0.62	0.76	0.14	0.07	0.57	0.36	0.29	0.18	0.78	-0.14	1	
HA.fShock	0.2	0.28	-0.38	-0.3	0.38	0.46	0.01	-0.04	0.51	0.26	0.68	1

New Exposure Scores

1. Grip Score = Intensity of hand grip force + Intensity of upper extremity load + frequency of using a hand tool use + frequency of hand tool use in a fixed posture. Divided into 'low' (score =), 'medium' (score =), and 'high' (score =)
2. Vibration Score = HAV + frequency of impact shocks during HAV -- divided into 'exposed' (score = 2) and 'unexposed' (score >2)
3. Repetitive Flexion/Extension Score = Frequency of repetitive elbow flexion and extension work + Frequency of repetitive wrist flexion and extension work
4. Static work / Leaning = Frequency of upper extremity static work + Frequency of leaning on the elbow

Table III: Association between biomechanical factors and risk of radial nerve decompression surgery. Models adjusted for BMI, smoking, age, and time of surgery. N – number of workers; IR – incidence rate per 100,000 person-years; RR – relative risk; CI – confidence interval.

	<i>N</i>	<i>person-years</i>	<i>cases</i>	<i>IR</i>	<i>RR</i>	<i>95% CI</i>
<i>Grip Force</i>						
low	52 608	661 336	13	1.97	1	
moderate	71 880	909 036	27	2.97	1.07	0.66-1.76
high	105 219	1 328 957	52	3.91	1.64	1.06-2.54
<i>Upper Extremity Load</i>						
low	48 746	612 804	12	1.96	1	
moderate	92 807	1 172 566	32	2.73	1.38	0.88-2.16
high	88 154	1 113 959	48	4.31	2.16	1.40-3.32
<i>Frequency of repetitive elbow flexion and extension work</i>						
low	112 717	1 422 509	37	2.60	1.00	
moderate	41 828	524 928	13	2.48	0.94	0.57-1.56
high	75 162	951 892	42	4.41	1.66	1.16-2.37
<i>Frequency of repetitive wrist flexion and extension work</i>						
low	105 768	1 329 641	36	2.71	1.00	
moderate	46 733	592 650	14	2.36	0.87	0.52-1.47
high	77 206	977 038	42	4.30	1.56	1.07-2.27
<i>Frequency of hand-held tool use</i>						
low	54 750	688 387	13	1.89	1.00	
moderate	17 284	217 186	6	2.76	1.43	0.69-2.00
high	157 673	1 993 756	73	3.66	1.92	1.22-3.02
<i>Frequency of static work</i>						
low	68 712	866 097	22	2.54	1.00	
moderate	96 770	1 222 189	47	3.85	1.50	1.01-2.22
high	64 225	811 043	23	2.84	1.12	0.71-1.77
<i>Frequency of full wrist extension</i>						
low	130 057	1 637 400	46	2.81	1.00	
moderate	99 650	1 261 929	46	3.65	1.29	0.92-1.82
high	--	--	--	--	--	--
<i>Frequency of full elbow extension</i>						
Low	128 983	1 621 204	41	2.53	1.00	
moderate	83 278	1 057 846	42	3.97	1.56	1.04-2.33
High	17 446	220 279	9	4.09	1.59	0.82-3.10
<i>Frequency of using a hand held tool in a fixed position</i>						
Low	87 404	1 099 285	29	2.64	1.00	
moderate	9 558	120 486	1	0.83	0.31	0.08-1.13
High	132 745	1 679 558	62	3.69	1.38	1.03-1.85
<i>Frequency of leaning on elbows</i>						
Rare	160 036	2 019 153	71	3.52	1.00	
Often	69 671	880 176	21	2.39	0.69	0.47-1.02
<i>Hand-arm vibration</i>						
None	104 469	1 314 283	33	2.51	1.00	
Acceptable	98 329	1 248 150	46	3.69	1.45	1.01-2.07
High	26 909	336 896	13	3.86	1.55	0.93-2.58
<i>Frequency of shocks during hand-arm vibration</i>						
Rare	162 359	2 048 529	66	3.22	1.00	
Often	67 348	850 800	26	3.06	0.96	0.68-1.35