Supplementary Information

Table S1. Association of *VD*R-FokI genotypes with lumbar spine pathologies in total 521 subjects (254 controls and 267 cases) evaluated. Patients were subdivided in Subgroups 1 to 4 and A to D according to specific pathologic conditions Subgroup 1 = patients with disc herniation alone; Subgroup 2 = patients with discopathies and/or osteochondrosis associated with disc herniation; Subgroup 3 = patients with discopathies and/or osteochondrosis without herniation; and Subgroup 4 = patients with stenosis and/or spondilolysthesis. Subgroup A, Subgroup 1 grouped with Subgroup 2 (*i.e.*, all hernia cases with or without concomitant additional conditions); Subgroup B, Subgroup 2 grouped with Subgroup 3 (*i.e.*, all discopathies and/or osteochondrosis); Subgroup C, all discopathies cases with or without concomitant disc herniation; Subgroup D, all osteochondrosis cases with or without concomitant disc herniation

Variables	***FF n* (%)**	**Crude OR (95% CI) *p* Value**	**Adjusted OR [1] (95% CI) *p* Value**	***Ff n* (%)**	**Crude OR (95% CI) *p* Value**	**Adjusted OR [1] (95% CI) *p* Value**	***ff n* (%)**	**Crude OR (95% CI) *p* Value**	**Adjusted OR [1] (95% CI) *p* Value**
Controls *n* = 254	101 (39.8)	-	-	117 (46.1)	-	-	36 (14.2)	-	-
Subgroup 1 *n* = 89	37 (41.6)	1.08 (0.66–1.76)	0.96 (0.56–1.65)	40 (44.9)	0.96 (0.59–1.55)	0.99 (0.58–1.69)	12 (13.5)	0.94 (0.47–1.91)	1.09 (0.51–2.36)
Subgroup 2 *n* = 87	49 (56.3)	1.95 (1.19–3.20) *p* = 0.007	2.09 (1.19–3.66) *p* = 0.011	32 (36.8)	0.68 (0.41–1.12)	0.61 (0.35–1.08) *p* = 0.088	6 (6.9)	0.45 (0.18–1.11) *p* = 0.075	0.52 (0.19–1.41)
Subgroup 3 *n* = 40	14 (35.0)	0.82 (0.41–1.64)	0.74 (0.35–1.54)	23 (57.5)	1.58 (0.81–3.11)	1.94 (0.94–4.00) *p* = 0.074	3 (7.5)	0.49 (0.14–1.68)	0.37 (0.10–1.42)
Subgroup 4 *n* = 51	17 (33.3)	0.76 (0.40–1.43)	0.61 (0.30–1.22)	25 (49.0)	1.13 (0.62–2.06)	1.18 (0.61–2.29)	9 (17.6)	1.30 (0.58–2.89)	1.77 (0.73–4.32)
Subgroup 1 + 2 + 3 *n* = 216	100 (46.3)	1.31 (0.91–1.89)	1.25 (0.84–1.88)	95 (44.0)	0.92 (0.64–1.32)	0.93 (0.62–1.39)	21 (9.7)	0.65 (0.37–1.16)	0.70 (0.37–1.32)
Subgroup A *n* = 176	86 (48.9)	1.45 (0.98–2.13) *p* = 0.061	1.41 (0.91–2.18)	72 (40.9)	0.81 (0.55–1.20)	0.78 (0.50–1.20)	18 (10.2)	0.69 (0.38–1.26)	0.82 (0.42–1.61)
Subgroup B *n* = 127	63 (49.6)	1.49 (0.97–2.29) *p* = 0.067	1.49 (0.93–2.40) *p* = 0.100	55 (43.3)	0.89 (0.58–1.37)	0.91 (0.57–1.47)	9 (7.1)	0.46 (0.22–0.99) *p* = 0.043	0.42 (0.18–1.00) *p* = 0.051
Subgroup C *n* = 64	37 (57.8)	2.08 (1.19–3.62) *p* = 0.009	1.88 (1.03–3.43) *p* = 0.039	22 (34.4)	0.61 (0.35–1.09) *p* = 0.092	0.65 (0.35–1.20)	5 (7.8)	0.51 (0.19–1.37)	0.57 (0.20–1.61)
Subgroup D *n* = 50	24 (48.0)	1.40 (0.76–2.57)	1.50 (0.77–2.95)	24 (48.0)	1.08 (0.59–1.98)	1.01 (0.51–1.97)	2 (4.0)	0.25 (0.06–1.08) *p* = 0.047	0.23 (0.05–1.17) *p* = 0.078

[1] Adjusted OR: multivariate analysis; OR adjusted for age; BMI, family history, smoking, physical job demand and exposure to vibrations; Only significant $p \leq 0.05$ or tendency $p \leq 0.10$ were indicated.

Table S2. Association of lumbar spine pathologies and *VDR*-FokI alleles. Patients were subdivided in Subgroups 1 to 4 and A to D according to specific pathologic conditions Subgroup 1=patients with disc herniation alone; Subgroup 2 = patients with discopathies and/or osteochondrosis associated with disc herniation; Subgroup 3 = patients with discopathies and/or osteochondrosis without herniation; Subgroup 4 = patients with stenosis and/or spondilolysthesis. Subgroup A, Subgroup 1 grouped with Subgroup 2 (*i.e*., all hernia cases with or without concomitant additional conditions); Subgroup B, Subgroup 2 grouped with Subgroup 3 (*i.e*., all discopathies and/or osteochondrosis); Subgroup C, all discopathies cases with or without concomitant disc herniation; Subgroup D, all osteochondrosis cases with or without concomitant disc herniation.

Variables	***F n* (%)**	**Crude OR (95% CI)** ***p* Value**	**Adusted OR [1] (95% CI)** ***p* Value**	***f n* (%)**	**Crude OR (95% CI)** ***p* Value**	**Adjusted OR [1] (95% CI)** ***p* Value**
Controls $n = 508$	319 (62.8)	-	-	189 (37.2)	-	-
Subgroup 1 $n = 178$	114 (64.0)	1.06 (0.74–1.51)	0.96 (0.65–1.41)	64 (36.0)	0.95 (0.66–1.35)	1.04 (0.71–1.54)
Subgroup 2 $n = 174$	130 (74.7)	1.75 (1.19–2.58) $p = 0.004$	1.76 (1.14–2.73) $p = 0.011$	44 (25.3)	0.57 (0.39–0.84) $p = 0.004$	0.57 (0.37–0.88) $p = 0.011$
Subgroup 3 $n = 80$	51 (63.8)	1.04 (0.64–1.70)	1.04 (0.62–1.74)	29 (36.3)	0.96 (0.59–1.57)	0.96 (0.58–1.61)
Subgroup 4 $n = 102$	59 (57.8)	0.81 (0.53–1.25)	0.67 (0.42–1.08) $p = 0.099$	43 (42.2)	1.23 (0.80–1.90)	1.49 (0.93–2.41) $p = 0.099$
Subgroup 1 + 2 + 3 $n = 432$	295 (68.3)	1.28 (0.97–1.67) $p = 0.078$	1.23 (0.91–1.66)	137 (31.7)	0.78 (0.60–1.03) $p = 0.078$	0.81 (0.60–1.10)
Subgroup A $n = 352$	244 (69.3)	1.34 (1.00–1.79) $p = 0.048$	1.27 (0.92–1.75)	108 (30.7)	0.75 (0.56–1.00) $p = 0.048$	0.79 (0.57–1.09)
Subgroup B $n = 254$	181 (71.3)	1.47 (1.06–2.04) $p = 0.020$	1.49 (1.04–2.13) $p = 0.032$	73 (28.7)	0.68 (0.49–0.94) $p = 0.020$	0.67 (0.47–0.97) $p = 0.032$
Subgroup C $n = 128$	96 (75.0)	1.78 (1.15–2.76) $p = 0.010$	1.64 (1.02–2.62) $p = 0.040$	32 (25.0)	0.56 (0.36–0.87) $p = 0.010$	0.61 (0.38–0.98) $p = 0.040$
Subgroup D $n = 100$	72 (72.0)	1.52 (0.95–2.44) $p = 0.079$	1.57 (0.94–2.64) $p = 0.086$	28 (28.0)	0.66 (0.41–1.05) $p = 0.079$	0.64 (0.38–1.07) $p = 0.086$

[1] Adjusted OR: multivariate analysis; OR adjusted for age; BMI, family history, smoking, physical job demand and exposure to vibrations; Only significant $p \leq 0.05$ or tendency $p \leq 0.10$ were indicated.