

## Effects of the Strengthening Exercise on Back Muscles after Lumbar Discectomy

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### – Abstract –

**Study design :** A retrospective study about lumbar strengthening exercise after lumbar discectomy.

**Objectives :** To evaluate the effect of lumbar strengthening exercise on muscle power and pain, to analyze the problem of rehabilitation program after lumbar discectomy.

Summary of Literature Review : The effectiveness of Lumbar strengthening exercise is still controversy and we can not found the similar article for this kind problem.

**Materials and methods :** Three- hundred twenty eight patients of microscopic lumbar discectomy from 1998 to 1999, were divided into 2 groups; exercise group was 72 cases among 119 patients, and non- exercise group was 58 cases among 208 patients. degree of pain and functional activity were evaluated by visual analog scale and API test, respectively, at postoperative 3 months, 6 months, 1 year. the reason for not exercising was surveyed in non- exercise group.

**Results :** Exercise group 119 patients(36%). The most common cause of Non- Exercise was a deficiency of importance for lumbar strengthening exercise and exercise was done better in civil peoples than in rural peoples. There was a significant good result in exercise group by visual analog scale for pain at 3 months and 6 months postoperatively, but no difference between two groups after 1 year. exercise group had better results in flexion/extension test and fatigue endurance test. Lumbar strengthening exercise was a good method for relieving the pain in short term, but it was not effective in long term follow up.

**Conclusions :** These results suggest that good results after lumbar discectomy in exercise group result from the secondary effects of increasing muscle power rather than relieving pain.

**Key Words :** lumbar discectomy, Back muscle, strengthening exercise

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가 36% , 가 2 30 72 , 208 가 58 , 가 42 , 가 30 18 50 38.3 . L2/3 1 , L3/4 6 , L4/5 38 , L5/S1 27 , protrusion 27 , extrusion 40 , sequestration 5 . 가 38 , 가 20 22 가 49 39.0 . L3/4 2 , L4/5 36 , L5/S1 20 protrusion 22 , extrusion 32 , sequestration 4 (Table 1).

2) 가 0 10 0 , 10 가 가 63 Activity pattern indicators( API ) (Table 2). 40 , 30 ~40 , 1 .

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**Table 1.** Patients characteristics.

		Exercise	Non-exercise
Level	Sex( M:F)	42 : 30	38 : 20
	Age	18-50(38.3)	24-49(39.0)
	L2/3	1	0
	L3/4	6	2
	L4/5	38	36
Type	L5/S1	27	20
	Protrusion	27	22
	Extrusion	40	32
Sequestration		5	4

**Table 2.** Item content of the 11 API Activity categories.

<b>Employment</b> Do your usual work away from home? Education Attend classes(for other than solely recreational purposes)? Study a textbook or do school homework?	Instruct or discipline a child? Feed, dress or attend a child? Stop to supervise a child's activities? Pick up or drop off a child?
<b>Personal care</b> Sit alone, idle or in thought? Lie down Just to rest or nap? Eat or snack? Bathe or take a shower? Get dressed or Change clothes? Engage in sexual activity? Obtain personal services(eg, get a haircut, go to the hairdresser)?	<b>Passive recreation</b> Stop to listen to a radio, stereo or records? Read a book, newspaper or records? Play cards or board games or work a crossword puzzle? Stop to watch TV? Work on a hobby or craft(eg, woodworking, crocheting)? Go for a drive or ride for recreation?
<b>Homemaking male</b> Do yard work or gardening? Work on or clean an automobile? Have Your car repaired, serviced or cleaned?	<b>Active recreation</b> Go for a walk? Participate in a sport or exercise(eg, bowling, biking, fishing)? Dine out? Go to a nightclub, disco, bar or tavern? Go to a movie, concert or play? Visit a library, museum, city park or gallery? Go to watch a sports event?
<b>Homemaking female</b> Cook or prepare meals? Do dishes? Clean house? Do laundry or iron clothes? Sew to make or repair clothing?	<b>Participation</b> Go to an organization or club meeting or function? Go to church or other religious activity?
<b>Homemaking general</b> Help another adult dressing, grooming or in the bathroom? Do small repairs or routine maintenance chores around the house? Work at balancing the household checkbook or paying bills? Make a phone call for household business(eg, to order something or straighten out a bill)? Shop for groceries? Shop for other merchandise(eg, clothings)? Obtain prescribed medicine? Obtain household services(eg, cleaners, shoe repair)? Do the banking? Leave the house to take care of things like shopping, banking, etc.?	<b>Socializing</b> Make a telephone call to a family member or relative? Receive a telephone call from a family member or relative? Make a telephone call to a friend or neighbor? Receive a telephone call from a friend or neighbor? Write a letter to a family member or relative? Write a letter to a friend? Receive a letter from friends or relatives? Go visit a family member or relative? Be visited by a friend or neighbor? Go to visit a friend or neighbor? Be visited by a friend or neighbor? Socialize with people you live with(eg, just sitting around talking, not doing other things)? Have a party or gathering at your house(not an organization function)? Go to a party or social event(not an organization function)?

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**Table 3.** Visual analog scale(VAS).

	Exercise	Non-exercise
3 month	$2.8 \pm 0.1^*$	$3.4 \pm 0.2$
6 month	$2.6 \pm 0.1^*$	$4.0 \pm 0.1$
1 year	$4.0 \pm 0.4$	$4.8 \pm 0.3$

(\*; p&lt;0.05)

**Table 5.** Flexion/extension test.

	Exercise	Non-exercise
3 month	$14.4 \pm 2.2^*$	$8.0 \pm 0.9$
6 month	$16.0 \pm 1.5^*$	$12.1 \pm 1.2$
1 year	$15.6 \pm 2.5^*$	$10.1 \pm 2.1$

(\*; p&lt;0.05)

**Table 4.** Activity pattern indicator(API) test.

	Exercise*	Non-exercise
Good	46	26
fair	22	22
poor	4	10

(\*; p&lt;0.05)

**Table 6.** Fatigue endurance test.

	Exercise	Non-exercise
3 month	$14.1 \pm 1.1^*$	$10.1 \pm 0.8$
6 month	$16.2 \pm 1.9^*$	$9.6 \pm 1.1$
1 year	$17.1 \pm 2.2^*$	$11.1 \pm 2.1$

(\*; p&lt;0.05)

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