

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 inrural 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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* 2002

가 36% 가 2 30 가 72

208 가 58

가 6.9,12) 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

1998 1 1999 12

327

327

6 William Mckenzie 20 , 50 (70) 1 (/)

1, 2, 3

1) 327 가 119 (1) 208 (2)

Table 1. Patients characteristics.

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

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

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

가 test , API
 X^2
) 3 , 6 , 1
 4) 1)
 ± , 36%
 SPSS (Window version 8.0) independent t- 29 ,

Table 3. Visual analog scale(VAS).

	Exercise	Non-exercise
3 month	2.8 ± 0.1*	3.4 ± 0.2
6 month	2.6 ± 0.1*	4.0 ± 0.1
1 year	4.0 ± 0.4	4.8 ± 0.3

(*; p<0.05)

Table 4. Activity pattern indicator(API) test.

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

(* ; p<0.05)

Table 5. Flexion/extension test.

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

(*; p<0.05)

Table 6. Fatigue endurance test.

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

(*; p<0.05)

14 , 5 ,
4 , 3 , 3
가
가
2 , 24 , 31 , 15 ,
5 , 24 , 18 ,
11 가
가

46 , 26
19 , 39 가
가 (p<0.05).

2) 가 가
10 3
2.8 ± 0.1, 6 2.6 ± 0.1, 1 4.0 ± 0.4
3.4 ± 0.2, 4.0 ± 0.1, 4.8 ± 0.3 3
, 6
(p<0.05) 1

(Table 3). 46
, 22 , 4 , 26
, 22 , 10
(p<0.05)(Table 4).

3)
/ 3 14.4 22).
± 2.2 , 6 16.0 ± 1.5 , 1 15.6 ± 2.5 49~90% 1,11,18).
3 8.0 ± 0.9 , 6 12.1 ± 1.2 6

, 1 10.1 ± 2.1 3, 6 , 1
(p<0.05)(Table 5).
3 14.1 ± 1.1 ,
6 16.2 ± 1.9 , 1 17.1 ± 2.2
10.1 ± 0.8 , 9.6 ± 1.1 , 11.1 ± 2.1 3, 6 ,
1 (p<0.05)(Table 6).

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50%

1~20% 가 5,27).
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23).
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8,16,19),

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^{6,9,12)}
Gerard ¹³⁾

3

. Donceel ¹⁰⁾

가 가

가

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가

Rissanen ²⁶⁾

II

가

가

4~16

^{3,4,20,21)}

가

가 ^{11,15)} ,

가

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가

가,

가

feedback

가

가

가

가

²⁵⁾

가

1.

36%

(1

),

가

가

^{6,7,25)}

2.

^{14,24)}

1937 Williams가
1981 Mckenzie가

1

가

가

가

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가 72

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가 58

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119 (36%)

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3 ,6

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