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Does Early Intervention With a Light Mobilization Program Reduce Long-Term Sick Leave for Low Back Pain: A 3-Year Follow-up Study

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Study Design. A randomized clinical trial.

Objectives. To evaluate long-term clinical and economical effects of a light mobilization program on the duration of sick leave for patients with subacute low back pain.

Summary of Background Data. Twelve-month follow-up results from a previous study showed that early intervention with examination at a spine clinic, giving the patients information, reassurance, and encouragement to engage in physical activity as normal as possible had significant effect in reducing sick leave. At 12-month follow-up, 68.4% in the intervention group were off sick leave, as compared with 56.4% in the control group. Patients in this study were followed-up for a period of 3 years to investigate possible long-term effects.

Materials and Methods. Four hundred fifty-seven patients placed on a sick list for 8 to 12 weeks for low back pain were randomized into two groups: an intervention group (n = 237) and a control group (n = 220). The intervention group was examined at a spine clinic and given information and advice to stay active. The control group was not examined at the clinic but was treated within the primary health care.

Results. Over the 3 years of observation, the intervention group had significantly fewer days of sickness compensation (average 125.7 d/person) than the control group (169.6 d/person). This difference is mainly caused by a more rapid return to work during the first year. There was no significant difference for the second or third year. In particular, there is no increased risk for reoccurrence of illness from early return to work. At 6-month follow-up, patients in the intervention group were less likely to use bed rest and more likely to use stretching and walking to cope with their back pain compared with the control group. This effect diminished. At 12-month follow-up, the only significant difference between the groups was in the use of stretching. Economic returns of the intervention were calculated in terms of increases in the net present value of production for the society because of the reduction in number of days on sick leave. Net benefits accumulated over 3 years of treating the 237 patients in the intervention group amount to approximately $2,822 per person.

Conclusions. For patients with subacute low back pain, a brief and simple early intervention with examination, information, reassurance, and encouragement to engage in physical activity as normal as possible had economic gains for the society. The effect occurred during the first year after intervention. There were no significant long-term effects of the intervention. The initial gain obtained during the first year does not lead to any increased costs or increased risks for reoccurrence of illness over the next 2 years. [Key words: light mobilization, subacute low back pain, randomized controlled study, outpatient treatment, return to work, sickness compensation, economic gains]
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Low back pain (LBP) is common and costly and represents a major health problem in Western industrialized countries.[1,2] In primary care, LBP is second only to upper respiratory problems as a symptom-related cause for visits to the physician.[3,4] Low back pain is the leading cause of sickness compensation and disability pension.[3] Several systematic reviews and guidelines have been developed.[5–7] Most back pain patients will recover rapidly regardless of treatment method;[8] however, for long lasting back pain there is still uncertainty about what is the better treatment.[9–13]

Many patients with LBP are dissatisfied with their medical care. One of the main reasons patients consult physicians is to seek information and reassurance.[14,15] The patients have practical and realistic desires to learn about their LBP, what to expect, and what they can do about it. For LBP patients, failure to receive an adequate explanation for their back pain is the most frequent reason for dissatisfaction.[16,17] Carefully selected and carefully presented information and advice about back pain can have a positive effect on patients' beliefs and clinical outcomes.[18]

Fear of movement and reinjury induce inactivity and, therefore, contribute to risks of chronic disability. Encouragement to return to work and normal activities may sound counterintuitive. However, the longer a patient is off work because of LBP, the greater the risk of chronic pain and the lower the chance of ever returning to work.[19] In a Norwegian study, fear reduction and light activity had a significant effect on sick leave at 6 months follow-up[20] and 5 years follow-up.[21] Previously we have reported results from a study based on this "In-

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dahl treatment."[20] We investigated the effect of an early intervention on LBP patients, including examination, information, and recommendations to stay active.[22] Over a 12-month follow-up period there was a significant reduction of sick leave for LBP. Patients in the intervention group returned to work earlier compared with patients in the control group. Three months after granting sickness compensation, 52% in the intervention group and 36% in the control group were reported off sick leave. At 12 months, 68% in the intervention group were reported off sick leave, compared with 56% in the control group.[22] These Norwegian studies emphasized fear reduction, light activity, and avoiding focus on sickness behavior.

The aim of this study was to investigate the long-term effects (3 y) of this intervention program.[22] Does the initial effect last, or does it lead to a change in risk for reoccurrence of the illness? What are the gains or losses for society from this program?

■ Materials and Methods

In collaboration with 22 National Insurance Offices (NIO) in a Norwegian county (Hedmark), sickness certificates from patients on a sick list for 8 to 12 weeks for LBP with or without radiating pain and age between 18 and 60 years were evaluated for inclusion in the study. Exclusion criteria were pregnancy, recent low back trauma, cauda equina symptoms, cancer, osteoporosis, rheumatic low back disease, and ongoing treatment for LBP by another specialist. Patients accepted into the study were randomized to an intervention group and a control group according to a list prepared in advance at the University of Bergen (Norwegian Back Pain Network, Research Unit). The result of the randomization for each patient was kept in sealed envelopes, one for each patient. The randomization list was generated using a table of random numbers. Blocks of 20 patients were used to produce the list[23] to ensure equal treatment numbers. The clinician was not aware of the block size and could not predict the group assignments. Independent secretaries handled the list and patient registration and were not involved in the treatment of the patients. All envelopes were numbered consecutively to avoid rearrangements of the order.

Five hundred ten patients met the inclusion criteria and were invited to participate in the study: 254 were randomized to the intervention group and 256 to the control group. Consent was obtained after randomization. In the control group, 220 patients (86%) accepted to participate in the study. In the intervention group, 237 patients (93%) accepted. All patients were informed about the study according to the Declaration of Helsinki, and informed consent was obtained.

Mean age at entry was 40.9 years (SD = 10.0). The intervention group consisted of 237 patients, 123 men and 114 women, with mean age of 40.8 years (SD = 10.1). The control group consisted of 220 patients, 115 men and 105 women, with mean age of 41.1 years (SD = 9.8).

The control group patients were invited to their local insurance office to answer the same questionnaires as in the intervention group. They were not examined at the spine clinic but were treated within the primary health care. The patients in the intervention group were invited to the spine clinic within week 12 of sick leave. They were interviewed and examined by a treatment team consisting of a physician (specialist in physical medicine and rehabilitation) and a physiotherapist. Special attention was given to the description of daily activities and the restrictions caused by LBP, in addition to psychosocial conditions at home and at work. Unless symptoms and clinical findings indicated any serious spinal disease, the patients were informed about the good prognosis and the importance of staying active to avoid development of muscle dysfunction. They were encouraged to take daily walks. All the patients were advised and instructed individually by the physiotherapist in how to train and stretch at home and received practical advice in coping with daily activities at home and at work and how to resume normal activities. The patients were encouraged to contact the Spine Clinic whenever they wanted. Reports from the examination were sent to the patients' primary care physician and to the National Insurance Office, with diagnoses, recommendations concerning need of further diagnostic tests, treatment, job, and, if possible, recommendations regarding need for further sick leave. The patients in the intervention group and the control group answered the same standard questionnaires 3, 6, 12, and 24 months after sick leave.

Sick leave data (total length of leave, frequency of sick leave periods) were collected from both groups 3, 6, 12, 24, and 36 months after the initial sick leave. The data on sick leave, disability, and other social benefits were collected register data from the National Insurance Offices. Data from two patients in the intervention group (1 man and 1 woman) are missing at 2-year follow-up. At 3-year follow-up, data are missing from 11 patients (4 men and 7 women) in the intervention group and five patients (2 men and 3 women) in the control group.

Analysis. Relative risk (RR) and 95% confidence interval (95% CI) were used to evaluate the effects of intervention and control on return to work. The main outcome was return to work full-time. Relative risk was calculated at five different times: 3, 6, 12, 24, and 36 months after the sickness compensation date used for inclusion in the study. Odds ratios (OR) adjusted for gender, age, education, and marital status were also calculated. Simple analysis of variance (ANOVA) with SPSS 7.5.1 for Windows was used to test the difference between the intervention group and the control group in the number of days of sickness compensation (full-time and part-time). In the ANOVA analysis, the number of days on disability pension and rehabilitation programs was calculated as sickness compensation. To control for age, gender, education, and marital statu, univariate analysis of variance was used. Descriptive statistics are reported with standard deviation when RR or other statistical comparisons are involved, and 95% CI is reported to facilitate comparisons.

The data were analyzed according to the "intention to treat" principle. Two patients discontinued the 2-year follow-up analysis. Another 11 persons discontinued the 3-year analysis. They were all regarded as having treatment failure in the data analysis. At the 2-year follow-up, two patients were dead. At 3-year follow-up, a total of five patients were dead. These patients are regarded as missing, because the cause of death was assumed to be unrelated to their LBP problem and are not treated according to the intention-to-treat principle. Minor discrepancies in the outcome tables from previously published data are because of changes in formal classification by the insurance system.

Cost-Benefit Analysis. We estimated the economic returns of early intervention at the spine clinic *versus* treatment according to standard practice in the primary health care sector by a standard-cost benefit formula as given by:[24–26]

$$\mathrm{NPSV} = \sum_{i=1}^{n}\left(\left\{\sum_{t=1}^{T}\frac{(Y_{1t}^{i} - Y_{0t}^{i}(W_{t}^{i} - F_{t}^{i} + \lambda U_{t}^{i})}{(1+r)^{t}}\right\} - (1+\lambda)(C_{1t}^{i} - C_{0t}^{i})\right) > 0.$$

The general expression states that for the treatment to generate positive net returns, the expected net present social value (NPSV) of the program must be positive when summing over all individual participants $i = 1,.....,n$ from time $t = 1,.....,T_i$, where T_i is the time of retirement for individual *i*. The *i* could also be interpreted as patient group. Y_{1t} denotes the outcome, *i.e.*, number of sick days, for person *i* at time *t* provided that he or she participated in the early intervention program, whereas Y_{0t} is the corresponding number for persons receiving the standard treatment in the primary health care sector. W^i_t denotes the increased social value of production when person *i* works at time *t*. Assuming efficient markets, W^i_t is measured as gross wage payments including employment taxes. F^i_t is the social value of leisure time lost by individual *i* when working at time *t*. The fact that individuals have to give up leisure time to work should be taken into account when calculating the net benefits of the program for the society. Assuming a constant labor supply elasticity of 0.4, this value is approximated to 29% of net annual wage earnings for each individual *i*. λ is a positive parameter reflecting the marginal cost of public funds when programs are financed by taxation. U^i_t denotes the reduction in public transfers to individual *i* when he or she works rather than receiving sickness benefits at time *t*. Finally, C_{1t} refers to the direct costs of treating individual *i* in the program, whereas C_{0t} refers to the costs of alternative treatment received outside the program and financed by public funds.

We let *t* denote years and calculate benefits obtained during the first 3 years after treatment in NOK 1995. The values of economic returns of treatment accumulated in years 2 and 3 were therefore discounted by a rate of 0.035. Costs of treatment in the early intervention program decrease soon after randomization, whereas benefits accumulate as long as the treatment effect given by the differences in sickness days between participants in the intervention and the control group are different from zero.

Costs of treatment include the costs of treatment and follow-up at the spine clinic. In addition, potential differences in treatment costs between the intervention and the control group related to treatment received outside the clinic should be accounted for. Regarding this, information about type and amount of treatment outside the spine clinic was collected from participants in both groups from standard follow-up questionnaires at 3-, 6-, and 12-month follow-up. On average, controls and participants in the intervention group received approximately the same amount of physiotherapy. Differences between the groups in chiropractic treatment and visits to the GP (control group higher) were not statistically significant and were therefore not taken into account in the calculation of treatment costs. As a result of this C_{0t} could be ignored in our calculation. The treatment costs in the intervention program were not monitored at the patient level and were therefore approximated based on personnel costs related to treatment. On average, treatment of each patient required 1.5 hours with the physician, 1.5 hours with the physiotherapist, and 1 hour with the secretary. In addition 25% of the intervention group later received a 1-hour follow-up by the physiotherapist. Calculation of treatment costs at the clinic should also account for operating expenses (buildings, equipment, cleaning, *etc.*). Information about such costs is not available on clinic or patient level. Based on experience from a Norwegian outpatient clinic for rehabilitation of musculoskeletal patients where operating expenses amounted to 50% of the clinic's total costs,[27,28] we multiplied our estimate of personnel costs by a factor of two to account for operating expenses in our program. This may overstate the total costs of treatment when based inside a hospital, hence suggesting that our calculation is based on a conservative cost estimate. Benefit and cost elements as they appear in the analysis are reported in Table 3.

■ Results

There were no significant differences between the two groups on baseline characteristics such as marital status, education, job security, previous sick leave for LBP, or diagnoses given from the primary care physician at sickness certificate II.[22] Most (80%) patients in both groups were working in occupations with heavy physical demands.

Return to Work

All significant differences between the intervention and the control group occurred during the first year[22] (Table 1 and Fig. 1). The intervention group showed a nonsignificant decrease in the percent working after 12 months, decreasing to the same level as the control group. At 2- and 3-year follow-up there was no significant difference between the intervention group and the control group regarding number of patients reported off sick leave (Table 1).

There were no significant gender differences between the number of men and women reported off sick leave in the intervention group at 1-year (RR = 1.11 [95% CI: 0.65–1.94]), 2-year (RR = 1.31 [95% CI: 0.77–2.17]), or 3-year follow-up (RR = 1.09 [95% CI: 0.63–1.87]) (Table 1). There were no significant gender differences between the number of men and women reported off sick leave in the control group at 1-year (RR = 1.47 [95% CI: 0.86–2.51]) or 2-year (RR = 1.51 [95% CI: 0.86–2.66]) follow-up. Significantly more men than women were reported off sick leave at 3-year follow-up (RR = 1.93 [95% CI: 1.11–3.37]) (Table 1).

At 1-, 2-, and 3-year follow-up, there were no significant differences between the intervention and the control groups regarding number of patients receiving insurance benefits (Table 2).

Number of Sickness Days

There were significant differences between the intervention and the control groups regarding total number of sickness days. The significant differences reported at

Table 1. Number of Patients, Relative Risk (RR), and Adjusted Odds Ratios (OR) Reported Off Sick Leave at 1, 2, and 3 Years Follow-up Assessments in the Intervention (n = 237) and Control Group (n = 220)

	n (%)	RR (95% CI)	Adjusted* OR (95% CI)
1 year			
Intervention	163 (68.8)	1.2 (1.04–1.39)	1.60 (1.08–2.39)
Control	126 (57.3)		
2 years			
Intervention	145 (61.2)	0.93 (0.81–1.06)	0.75 (0.51–1.11)
Control	144 (66.1)		
3 years			
Intervention	150 (63.8)	1.03 (0.90–1.19)	1.09 (0.73–1.62)
Control	134 (61.8)		
Men			
1 year			
Intervention (n = 123)	86 (69.9)	1.13 (0.94–1.36)	1.30 (0.75–2.35)
Control (n = 115)	71 (61.7)		
2 years			
Intervention	79 (64.2)	0.91 (0.76–1.09)	0.67 (0.38–1.19)
Control	81 (70.4)		
3 years			
Intervention	80 (65)	0.96 (0.80–1.15)	0.82 (0.46–1.45)
Control	79 (69.3)		
Women			
1 year			
Intervention (n = 114)	77 (67.5)	1.29 (1.03–1.61)	1.91 (1.09–3.35)
Control (n = 105)	55 (52.4)		
2 years			
Intervention	66 (57.9)	0.95 (0.76–1.18)	0.86 (0.49–1.49)
Control	63 (61.2)		
3 years			
Intervention	70 (62.5)	1.17 (0.93–1.47)	1.48 (0.85–2.58)
Control	55 (52.4)		

* Adjusted for gender, age, marital status, and education. In the analysis of men only and women only, the ORs are adjusted for age, marital status, and education.

1-year follow-up[22] were also present at 3-year follow-up (F= [1,455] 14.20, $P < 0.001$ [adjusted F = 1,455] 12.79, $P < 0.001$) for the period analyzed as a whole. Over the 3-year observation period participants in the intervention group had, on average, 125.7 days (95% CI: 110.8–140.5) on sick leave, whereas participants in the control group on average had 169.6 days (95% CI: 151.9–187.3) on sick leave, calculated from the day of the first consultation. Over the same period, there were no significant difference between the intervention (mean 46.6; 95% CI: 35.8–57.3) and the control group (mean 41.3; 95% CI: 31.8–50.8) on number of days on part-time sick leave (F = [1,455] 0.52, $P = 0.472$).

There were no significant differences between groups regarding risk for new episodes of sick leave because of LBP over the 3 years. However, both groups had rather high prevalence of such episodes: 62% (n = 147) in the intervention group and 61.4% (n = 135) in the control group. Most had experienced one (26.9%) or two (18.6%) new episodes during the 3-year follow-up.

Low Back Pain

At 6-month follow-up, 95.3% of the patients in the intervention group and 93.1% of the patients in the control group still reported LBP (RR = 1.03 [95% CI: 0.97–1.08]). However, 60% of the patients in the intervention group and 51% of the patients in the control group reported that their LBP had improved (RR = 1.18 [95% CI: 0.97–1.45]). At 1-year follow-up 88.7% of the patients in the intervention group and 93.2% of the patients in the control group still reported LBP (RR = 0.95 [95% CI: 0.88–1.03]). At 1-year follow-up, 46.8% of the patients in the intervention group and 51.7% of the patients in the control group reported that their LBP had improved during the past year (RR = 0.91 [95% CI: 0.71–1.16]).

There were a few significant differences between the intervention and the control group in use of different strategies to cope with LBP. At 6-month follow-up patients in the intervention group were significantly less likely to use bed rest as a coping strategy compared with patients in the control group (RR = 0.66 [95% CI: 0.44–0.99]). At 6-month follow-up patients in the intervention group were significantly more likely to use stretching (RR = 1.62 [95% CI: 1.20–2.20]) and walking (RR = 1.29 [95% CI: 1.02–1.62]) as coping strategies compared with the control group. There were no significant differences between the intervention and the control group in the use of analgesics, contacting the physician, and relaxation as coping strategies to reduce LBP. At 12-month follow-up the only significant difference between the intervention and the control group was in the use of stretching (RR = 1.39 [95% CI: 1.01–1.91]).

Cost-Benefit Analysis

During the 3-year follow-up the average difference in days on sick leave between treated and controls accumulated to 43.9 calendar days per person in favor of the treatment group. Taking into account that sickness compensation is granted only for working days and not weekends, the difference in days with sickness compensation from the national social insurance system amounts to 31.4 days per person in favor of the early intervention program. Hence, we based our calculation of economic returns for the society on the assumption that treatment reduces the number of days with sickness compensation for a worker by 31.4 days, and we took into consideration that most of this effect (27.3 d) appears during the first year after treatment (Table 3).

Based on this, the total discounted benefit accumulated over 3 years of treating the 237 patients in the early intervention program is given by $237 \times 1.33 \times (17{,}454 - 2696 + 0.2 \times 17{,}454) + (237 \times 0.1 \times (17{,}454 - 2696 + 0.2 \times 17{,}454/1.035) + (237 \times 0.1 \times 17{,}454 - 2696 + 0.2 \times 17{,}454)/1.07)$, which amounts to NOK 6,574,349 (approximately $900,596 for an exchange rate of NOK: 7.3 per $1 US) or NOK 27,740 (approximately $3,800) per patient. We estimated the total costs of treatment to NOK 524,658 (approximately $71,877) or NOK 2,214

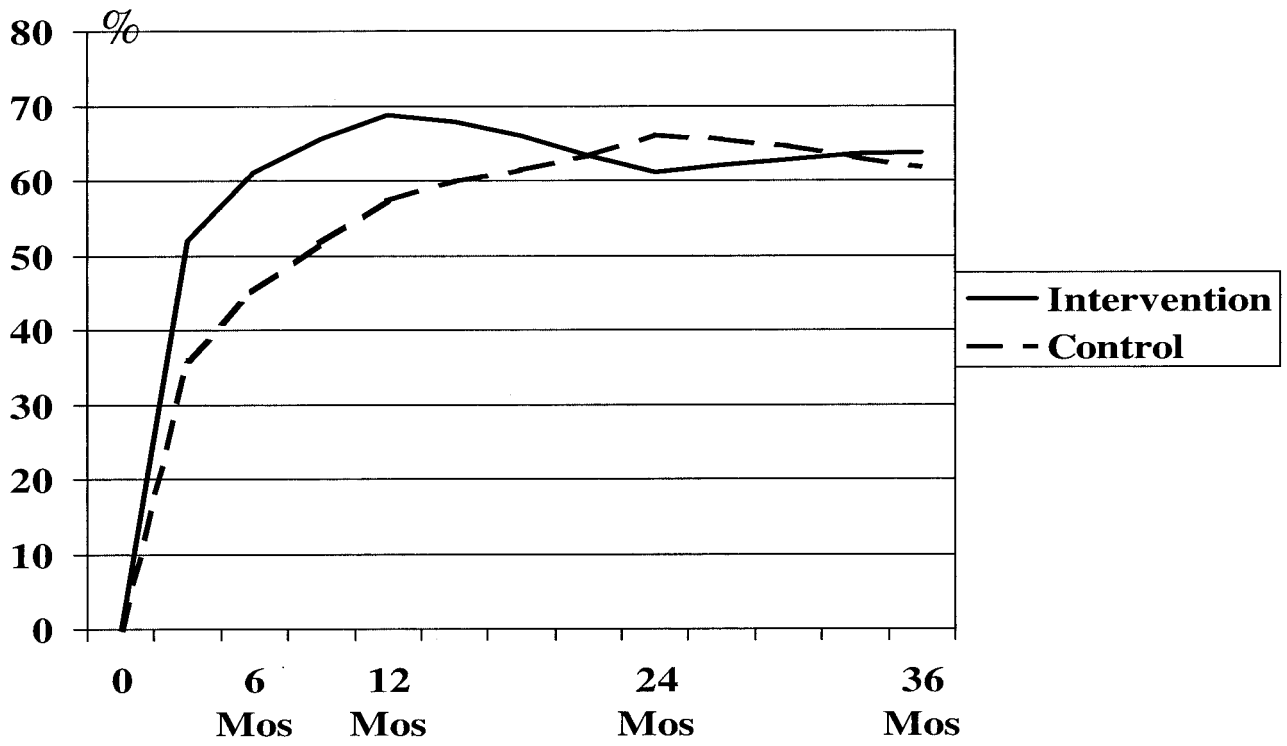

Fig. 1. Percent of patients reported off the sick list.

(approximately $303) per patient. Subtracting cost of treatment from benefits gives us an estimate of the net present social value for the society amounting to NOK 6,049,649 (approximately $828,719), or NOK 25,526 (approximately $3,497) per patient.

■ Discussion

A brief and simple intervention with examination, information, reassurance, and encouragement to engage in physical activity as normal as possible showed significantly fewer days of sickness compensation (average 125.7 d/person) compared with a control group (169.6 d/person). This difference is mainly because of a more rapid return to work during the first year. There was no significant difference for the second or third year. The difference occurred during the first year, but there is no additional cost or increased illness from early return to work in the intervention group.

Although as many as 95.3% in the intervention group and 93.1% in the control group still reported LBP at 6-month follow-up, there were more patients in the intervention group (60%) than in the control group (51%) reporting that their LBP had improved. At 1-year follow-up only 46.8% of the patients in the intervention group reported improvement, whereas there was no change in the control group (51.7%) compared with 6-month follow-up.

The main purpose of the intervention was to provide LBP patients with coping skills to manage their back pain, which they may not receive by conventional primary health care. At 6-month follow-up, patients in the

Table 2. Number of Patients, Relative Risk (RR), and Adjusted Odds Ratios (OR) Receiving Disability Pension or Participating in Rehabilitation Programs at 1, 2, and 3 Years Follow-up Assessments in the Intervention (n = 237) and Control Group (n = 220)

	n (%)	RR (95% CI)	Adjusted* OR (95% CI)
1 year			
Intervention	50 (21.1)	1.11 (1.00–1.24)	1.45 (0.94–2.24)
Control	64 (29.1)		
2 years			
Intervention	53 (22.6)	1.04 (0.94–1.16)	1.10 (0.71–1.72)
Control	56 (25.5)		
3 years			
Intervention	54 (23.5)	1.03 (0.93–1.14)	1.11 (0.71–1.74)
Control	56 (25.9)		
Men			
1 year			
Intervention (n = 123)	25 (20.3)	1.05 (0.92–1.21)	1.10 (0.58–2.08)
Control (n = 115)	28 (24.3)		
2 years			
Intervention	27 (22.0)	1.02 (0.89–1.17)	1.01 (0.53–1.91)
Control	27 (23.5)		
3 years			
Intervention	26 (21.5)	0.97 (0.86–1.11)	0.92 (0.46–1.84)
Control	22 (19.1)		
Women			
1 year			
Intervention (n = 114)	25 (21.9)	1.19 (1.00–1.41)	1.85 (1.01–3.40)
Control (n = 105)	36 (34.3)		
2 years			
Intervention	27 (22.1)	1.07 (0.92–1.25)	1.32 (0.70–2.49)
Control	27 (23.5)		
3 years			
Intervention	28 (25.7)	1.12 (0.94–1.33)	1.43 (0.77–2.65)
Control	34 (33.3)		

* Adjusted for gender, age, marital status, and education. In the analysis of men only and women only, the ORs are adjusted for age, marital status, and education.

Table 3. Elements in the Cost-Benefit Analysis[a]

Elements in Calculation	
Annual income (mean, treatment group)[b]	\$165,200/\$22,630
Outcome: differences in average number of sickness days between groups in follow-up year 1, 2, and 3 after treatment ($-(Y_{1t} - Y_{0t})$)	1st year: 27.3 (1.3) 2nd year: 2.05 (0.1) 3rd year: 2.05 (0.1)
Gross wage payments (W_t)[c]	\$209,445 (17,454)/\$28,691 (2,391)
Reduction in public transfers (U_t)[d]	\$209,445 (17,454)/\$28,691 (2,391)
Social value of loss of leisure (F_t)[e]	\$32,350 (2,696)/\$4,432 (369)
Social discount rate (r)	0.035
Costs of funding public transfers (λ)	0.2
Number treated	237

Benefits of Treatment	Total	Per Patient
Benefits year 1	\$5,752,267/\$787,982	\$24,271/\$3,325
Discounted benefits year 2	\$ 417,875/\$57,243	\$ 1,763/\$242
Discounted benefits year 3	\$ 404,207/\$55,371	\$ 1,706/\$234
Sum discounted benefits	\$6,574,349/\$900,596	\$27,740/\$3,800

Costs of Treatment	Total	Per Patient
Personnel costs[f]	\$245,769/\$33,667	\$1,037/\$142
Follow-up by physiotherapist[g]	\$ 16,560/\$2,268	\$ 70/\$9.60
Operational expenses	\$262,329/\$35,935	\$1,107/\$152
Sum costs of intervention	\$524,658/\$71,877	\$2,214/\$303

a) All measures are in NOK (1995)/US\$, exchange rate NOK 7.3 per 1 US\$. In the calculation, all benefit elements are measured in amounts corresponding to a calendar month (numbers reported in parenthesis). For the outcome variable, reduction in sick leave days, a calendar month is 20.5 working days (calendar month in parenthesis). For the income related variables the amount associated with a calendar month is the annual number divided by 12.
b) Before treatment. Adjusted by a 2% annual wage growth and used to calculate W_t, U_t, and F_t.
c) Annual wage payments + social costs (employers contribution of payroll taxes 17% + other social costs 7.3% on annual wage payments).
d) Here, reduction in net payment of sickness benefits + taxes on wage payments on a man-labor year. Because loss of wage payments during sickness is fully compensated by the social insurance, our estimate of U_t corresponds to W_t.
e) Assuming a constant labor supply elasticity of 0.4 this value is approximated to 29% of annual net wage. Annual net wage is calculated based on an annual average income taxation of 34%.
f) Includes, per patient, 1.5 h with physician, 1.5 h with physiotherapist, and 1 h work by secretary.
g) 25% of the treatment group (60 patients) received a follow-up examination (1 h) by physiotherapist.

intervention group were less likely to use bed rest and they were significantly more likely to use stretching and walking as coping strategies compared with the control group. However, this effect decreased. At 12-month follow-up there were no differences between the groups.

One possible explanation for the diminished effect may be that the length of the treatment at the spine clinic was too short and that follow-up-consultations at the spine clinic may be important. In our study all the patients in the intervention group visited the spine clinic once but were encouraged to contact the spine clinic whenever they wished. Only 25% used this opportunity. The intervention in the study by Indahl et al.[21] contained follow-up visits at the spine clinic 2 weeks, 3 months, and 1 year after the first consultation. This may account for the excellent results obtained, whereas only 19% of the patients in the intervention group compared with 34% in the control group were still on sick leave at 5-year follow-up.[21] However, there have also been changes in the information given to general practitioners on LBP care. It may be that the population of patients reaching the specialists now has a more serious condition.

Many patients with LBP are anxious and believe that there might be a serious underlying medical condition causing the pain, concern that movement or activity could cause injury or increased pain, and concern that pain could result in long-term disability.[29–36] These worries should be actively addressed in every primary care back pain visit.[33] The common element in behavioral treatment seems to be information and reduction of fear, anxiety, and uncertainty.

In systematic reviews it is suggested that behavioral treatment for patients with chronic LBP have positive effects on pain intensity, generic functional status, and behavioral outcomes.[37] A gradual loss of effects has been reported from many studies of LBP and for other nonspecific pain conditions.[38–41] In a randomized trial of a cognitive–behavioral program for enhancing back pain self-care in primary setting, a self-care group showed significantly greater reductions in back-related worry and fear–avoidance beliefs than the control group.[33] The strongest treatment effect was observed at 3-month follow-up, and at 12 months there were no longer any significant difference between the groups.

Costs in terms of production loss caused by sick leave are substantial. Therefore, with treatment costs at a modest level, economic returns for the society can soon outweigh the intervention costs even when treatment effects are temporary. We believe that our calculations of costs and benefits in the early intervention program pro-

vide a sober estimate of the economic gains for the society of providing sick-listed LBP patients with a short but systematic and standardized mobilization program.

■ Key Points

- Three years follow-up of a randomized clinical trial.
- Early intervention with examination, information, and recommendations to stay active was used.
- This approach had a significant short-term effect in reducing sick leave for patients with low back pain and had economic gains for the society.
- The initial effect on coping strategies diminished at 12 months follow-up.

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Point of View

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Norway has a population of 4.3 million. It is a resource-advantaged, relatively homogeneous, and highly progressive nation. It has provided its citizenry with a comprehensive social security program for more than half a century. In the past decade, the Norwegian Royal Ministry of Health and Social Affairs has undertaken a re-evaluation of the program. One aim of this initiative is to improve the disability insurance scheme. Fortunately, the Ministry has had the foresight to underwrite the clinical epidemiology to test the effectiveness of any reforms— before and after the fact. This report is a result of that foresight. This report, coupled with other studies supported by the Norwegian Ministry and published in *Spine*, offers important insights into the limitations of our approach to providing recourse for the worker with a chronic disabling regional backache. Furthermore, these insights generalize across the industrialized world.

Norwegian workers who find their regional backache disabling can take sickness absence without financial penalty. For the first 2 weeks, the cost is assumed by the employer, after which it is transferred to the National Insurance Administration. Approximately 85% return to work in the first 2 weeks,[4] an "iceberg" of morbidity that has largely escaped epidemiological radar in Norway and elsewhere. Most of the effort at reform focuses on the 15% who have not returned to work by the end of the 2 weeks.[2] Approximately two-thirds of them will return to work by the end of 2 to 3 months. Approximately one-third never return to work. One decade ago, the Norwegian Ministry instituted a program of "active sick leave" by which the National Insurance Administration would underwrite full wages for workers with disabling regional back pain who returned to modified duties at the workplace. There is no discernible effect on the likelihood of long-term disability.[3] The approach described in the current report is only slightly more encouraging. A multidisciplinary intervention designed to educate and reassure the worker culled a tiny percentage from those still disabled at 2 months who were otherwise destined for long-term disability.

No one has devised a more effective intervention. That is not for lack of trying. The literature is littered with failed attempts at all sorts of ergonomic inventiveness. Most would argue that success is but a novel approach away. I suspect that any attempt to return workers with chronic disabling regional backache to work may be as doomed as the precedents. That is because the attempts are constrained to treat workers with disabling regional backache, rather than people so afflicted who happen to work. "Worker" may be an administrative label, even a legislated rubric, but it is not a clinically meaningful category of people with backache or other regional musculoskeletal disorders. Workers are people who are gainfully employed. Most people with regional backache manage to get on with their lives but for transient compromises in function at work and at home. "Workers with chronic disabling regional backache" are people who have been transformed into insurance claimants. Most people with regional backache are neither inclined toward nor susceptible to this fate. The people at risk for insurmountable regional backache in Norway and elsewhere are distinctive. Life inside the workplace and outside the workplace succors them not. They have multiple somatic symptoms and are generally "tired and worn out."[1] Their next backache may be the "last straw." Disabling backache is their surrogate symptom. For these people who live under a pall, "return to work" is too narrow a public health goal and likely to prove iatrogenic in its pursuit.

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