

PRACTICAL POINTERS
FOR
PRIMARY CARE
ABSTRACTED MONTHLY FROM THE JOURNALS
NOVEMBER 2007

EVERYONE NEEDS A MEDICAL HOME. PRIMARY CARE IS IT

LATE LIFE DEPRESSION IS OFTEN UNDETECTED AND UNDERTREATED IN PRIMARY CARE

STATINS ARE A REMARKABLY SAFE GROUP OF DRUGS—FORTUNATELY

**BRAND-NAME AND GENERIC DRUG MANUFACTURERS HAVE RESPONDED IN WAYS TO ADVANCE
THEIR OWN ECONOMIC INTERESTS GO TO GOOGLE FOR \$4 PRESCRIPTIONS**

USING PEDOMETERS TO INCREASE ACTIVITY AND DECREASE BODY MASS INDEX AND BP

LUMBAR SUPPORTS TO PREVENT RECURRENT LOW BACK PAIN

**IN PATIENTS WITH ACUTE LOW BACK PAIN, DICLOFENAC + SPINAL MANIPULATION DID NOT
REDUCE THE NUMBER OF DAYS UNTIL RECOVERY**

GROUP EXERCISE BENEFITS PATIENTS WITH FIBROMYALGIA

**THINK ABOUT THE PATIENT'S EXPOSURE TO RADIATION BEFORE ROUTINELY ORDERING
A CT SCAN. "TOO MANY CT SCANS ARE BEING PERFORMED"**

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This document is divided into two parts

1) The **HIGHLIGHTS AND EDITORIAL COMMENTS SECTION**

HIGHLIGHTS condenses the contents of studies, and allows a quick review of pertinent points of each article.

EDITORIAL COMMENTS are the editor's assessments of the clinical practicality of articles based on his long-term review of the current literature and his 20-year publication of Practical Pointers.

2) The main **ABSTRACTS** section is designed as a reference. It presents structured summaries of the contents of articles in much more detail.

I hope you will find *Practical Pointers* interesting and helpful. The complete content of all issues for the past 6 years can be accessed at www.practicalpointers.org

Richard T. James Jr. M.D.

Editor/Publisher.

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HIGHLIGHTS AND EDITORIAL COMMENTS NOVEMBER 2007

Every Band Needs A Conductor. Everyone Needs a Medical Home

11-1 COORDINATING CARE: A Major (Unreimbursed) Task Of Primary Care

First contact care, continuity of care, comprehensive care, and coordinated care are attributes of primary care. Perhaps the most problem-ridden is the task of coordinating care of patients among the multiple entities beyond the primary care practice—specialists, ancillary services, pharmacies, hospitals, and home care agencies.

“Coordination of care” applies to not only information exchange among care providers, but also takes place between providers and patients and their families. “In this realm, performance is far from stellar.” Physicians may not provide recommendations that are clear to the patient. Patients may misunderstand. Physicians often do not advise patients about diagnostic test results. Advice received from different physicians may conflict in part because physicians fail to communicate with one another.

This study asked 16 geriatricians in an ambulatory setting to record the time spent doing several types of clinical interactions. They spent considerable time providing care that took place between face-to-face visits rather than within the visits. Eighteen percent of the average physician’s clinical work was between-visit work—usually without compensation. Most of the between-visit interactions were related to coordinating care with patients, families and other medical professionals.

Lack of physician time and lack of payment are likely explanations for inadequate care coordination.

Patients expect their PCP to coordinate their care throughout the health system. For primary care to assume this responsibility 2 things must happen: 1) Everyone needs to have a medical home, and 2) Payers need to reimburse primary care physicians for care-coordinating work.

What is a patient-centered medical home? Patients enroll in a practice and join a panel of physicians within that practice. Patients know who is responsible for their care, and physicians know which patients they are responsible for. One responsibility is to coordinate care within the rest of the health care system.

Coordinating care of elderly patients through the many services they receive is enormously complex because of the increasing number and variety of treatment sites they visit. Only through non-face-to-face interactions, mainly by telephone, can PCPs integrate what happens at multiple sites and at patients’ homes.

Patients also bear responsibility for coordinating their own care. This will require ongoing educational efforts.

Goals for patients. Aim for them even though they are unattainable.

To report use of all over-the-counter drugs.

To learn the names of all drugs and their purpose.

To ask when the PCP's directions are not perfectly clear.

To be compliant with drug-taking.

To prepare an office-visit agenda to use the time more efficiently.

To carefully prepare advanced directives and appoint a durable power of attorney. And check to see if this information is recorded on their office record.

To report any change in symptoms and any suspected adverse drug reaction.

To report any consultation they arrange without the PCP's knowledge.

Above all, to live a healthy lifestyle.

Goals for PCPs. Aim for them even though they are also difficult to attain.

Get to know the patient's narrative and to understand why he or she may not always comply.

Tailor advice and the treatment to each patient's resources, age, goals and values.

Enlist assistance from computers, nurses, and office personnel to facilitate care and communication with patients.

Improve coordination of care by promptly reporting results of laboratory tests and X-rays.

Often Undetected and Undertreated In Primary Care

11-2 LATE-LIFE DEPRESSION: The Clinical Problem:

As many as 10% of adults over age 65 who are seen in primary care settings have clinically significant depression. It is often undetected and undertreated in primary care

Late life depression can last for years. It is associated with difficulty with social and physical functioning, poor adherence to treatment, worsening of chronic medical conditions, and increased morbidity and mortality.

The Patient Health Questionnaire-2 is a two item screening instrument:

Over the past 2 weeks have you:

- 1) Had little interest or pleasure in doing things?
- 2) Been feeling down, depressed or hopeless?

[A positive response to both questions is a positive test.]

The article discusses screening, evaluation, management, and therapy (drugs, psychotherapy, exercise programs, and electroconvulsive therapy).

The first major step for primary care clinicians is to recognize depression.

We should screen for any disease with a prevalence of 10%.

“A Remarkably Safe Group Of Drugs When Used At Their Usual Doses”

11-3 THE SAFETY OF STATINS IN CLINICAL PRACTICE

There has been a trend toward use of higher doses of statins because the extent of risk reduction from atherosclerotic disease is directly proportional to the degree to which LDL-cholesterol is lowered. Cholesterol-lowering is now recommended for a wide range of people at cardiovascular risk, including those at average and below average lipid levels.

Collective results from large randomized trials of statin treatment confirm that reducing cholesterol and maintaining low levels for at least 5 years is safe and beneficial.

This review concentrates on safety information derived from randomized trials of specific statins. In the review, “standard dose” refers to the commonly prescribed doses which typically lower LDL-c by 30-45%.

The only well-documented, consistent adverse effects are 1) muscle toxicity, and 2) effects on liver enzymes.

Myopathy (also termed myositis) is defined as any muscle symptom (pain, tenderness, weakness) accompanied by creatine kinase (**CK**) levels greater than 10 times normal. In controlled trials of standard-dose statins there was a very low risk of myopathy (under 1 in 10 000).

All statins can cause myopathy and rhabdomyolysis. Risk is very low with standard doses that have been on the market for years. Risk is greater with higher doses. Combinations of statins with some fibrates (especially gemfibrozil; *Generic*) increase risk. Risk is higher in patients with renal impairment, hypothyroidism, serious debility, and age older than 80.

A small percentage of patients experience a rise in liver enzymes (alanine and aspartate transaminases). These increases, if due to statin, are generally seen within 6 months, are asymptomatic, and reverse on stopping the drug. There is no convincing evidence that the increases in transaminases are associated with liver damage, or any clear evidence of risk of hepatitis. Given the proven benefits of statins, labeling patients as statin-intolerant because of effects on liver enzymes has potentially important consequences for cardiovascular risk management, so needs to be done carefully.

Conclusion: Statins are a remarkably safe group of drugs when used at their usual doses. Myopathy and rhabdomyolysis are rare and increase with higher doses. Muscle pain is common in middle-aged patients, but is unlikely to be caused by the statin. Myopathy can be kept to a minimum by knowledge of potential drug interactions, and the vulnerability of particular groups of patients.

It is truly providential that these drugs, the most beneficial in the past decades, are so remarkably safe.

I abstracted this article in detail because of its clinical importance to primary care. Primary care clinicians are the chief prescribers of statins.

Read the full abstract.

Both Brand-Name and Generic Manufacturers Have Responded In Ways to Advance Their Own Economic Interests

11-4 THE ONGOING REGULATION OF GENERIC DRUGS

A. Brand-name producers:

When patents are about to expire, brand-name drug manufacturers may take actions to blunt the competition:

They patent a different delivery system.. (Eg. A long-acting version) The goal is to induce some users to switch to a product with a longer-running patent.

They may launch their own “authorized generic” version. Since the original manufacturer is licensing the right to produce its own drug, it is permitted to sell a generic form. This discourages competition.

They may institute promotional campaigns aimed at differentiating their products in the minds of patients and doctors from those of rivals. They may report research that tries to persuade physicians and patients to continue purchasing the brand-name product.

B. Generic drug producers:

Intense price competition also limits the profits of generic-drug manufacturers and leads them to seek ways of insulating themselves from intense rivalry. They have sought ways to gain some advantage over their rivals so as to be able to raise prices. One approach is to forge exclusive relationships with producers of the drug’s active ingredients. This blocks rivals from access.

I have great respect for pharmaceutical companies. On balance, I believe they have brought much more benefit than harm. In our competitive, capitalistic society, companies must protect their access to capital funds by showing a profit. Some ethicists may object to the manner in which they do this. I believe their methods are often a matter of self-preservation. Our economic system is not perfect.

Primary care clinicians must be aware of the subtle ways drug companies may try to influence them. Clinicians have an obligation to inform patients about drug prices. If the patient cannot afford to have the prescription filled, or be unable to continue filling it, the most expert application of evidence-based medicine, and the most compassionate application of the art of medicine will be valueless.

Cost is a basic component of the benefit / harm-cost ratio.

Several pharmacies are offering a month's supply of many generic drugs for \$4. Go to GOOGLE \$4 prescriptions.

Use Was Associated With Increased Activity and Decreased Body Mass Index and BP.

11-5 USING PEDOMETERS TO INCREASE PHYSICAL ACTIVITY AND IMPROVE HEALTH:

A Systematic Review and Meta-analysis

Pedometers have recently experienced a surge in popularity for motivating and monitoring physical activity. Some guidelines recommend that adults take 10 000 steps per day. (*About 5 miles.*)

This literature search found 26 studies (over 2700 out-patients; mean age = 49) which met inclusion criteria—8 randomized, controlled trials, and 18 observational studies. Relatively few participants were over age 60; most were women. Duration of studies averaged less than 6 months.

Overall, pedometer users increased their physical activity by 27% over baseline. Having a step goal was the key predictor of increased physical activity. Participants in the three studies that did not have a goal had no significant increase.

Pedometer use associated with other health outcomes: A reduction in BMI by 0.38 from baseline. And a reduction of BP by 3.8/0.3. Lipid and glucose levels were not significantly improved.

Conclusion: Use of pedometer was associated with increased activity and decreased body mass index and BP.

I believe this intervention is somewhat of a gimmick. But, some individuals will respond to a gimmick. Pedometers may provide an incentive for patients to begin an exercise program.

Long-term outcomes and effect on primary endpoints (if any) are not known.

May Reduce The Number Of Days When Low Back Pain Occurs

11-6 LUMBAR SUPPORTS TO PREVENT RECURRENT LOW BACK PAIN AMONG HOME CARE WORKERS: A Randomized Trial

This trial evaluated the effectiveness of use of lumbar supports to reduce recurrent low back pain (**LBP**) among home care workers who had a history of LBP (secondary prevention).

Controlled trial randomized 360 home care workers (mean age = 42; almost all female) to:

- 1) Control group received a short refresher course on healthy work habits.
- 2) Intervention group received a lumbar support in addition to the course.

The cohort included persons who performed medical care or domestic tasks as a home care worker. All had a history of 2 or more episodes of LBP in the past 12 months or were experiencing LBP at the time of inquiry,.

Results	Control	Intervention
Mean calendar days of LBP:	124	72
Mean calendar days of self-reported LBP-related sick leave	8	3

Total days of absenteeism from work—no difference between groups.

There were small, but statistically significant differences in favor of the intervention group in pain intensity, functional status, and number of days of sick leave due to LBP

There were almost 5 fewer days of LBP per month in the intervention group, and a clinically relevant decrease in severity of pain. “This represents great improvement in patients with low back pain.”

Conclusion: “Lumbar support may be a valuable addition to secondary prevention strategies in the workplace.”

The supports used in this trial were substantial, costing up to \$100

The article notes that recent systematic reviews concluded that there was no evidence that lumbar supports were effective in primary prevention.

Some individuals who do much lifting may wish to try them for primary prevention.

Neither Diclofenac nor Spinal Manipulation Reduced The Number Of Days Until Recovery

11-7 ASSESSMENT OF DICLOFENAC OR SPINAL MANIPULATIVE THERAPY, OR BOTH, IN ADDITION TO RECOMMENDED FIRST-LINE TREATMENT FOR ACUTE LOW BACK PAIN A Randomized Trial

Present guidelines for treatment of acute low back pain recommend that general practitioners should:

1) Give advice to remain active, avoid bed rest, and 2) Reassure patients about a favorable prognosis, and 3) Prescribe acetaminophen (*Generic; Tylenol*; paracetamol in the UK) as first-line of care.

NSAIDs (eg, diclofenac) and spinal manipulative therapy are recommended as second-line management options for patients with slow recovery.

This trial followed 239 patients (mean age 40; mean duration of symptoms= 9 days) presenting to primary-care physicians with acute back pain of less than 6 weeks duration.

At baseline, all patients were given advice about low back pain, were given acetaminophen 1 g four times daily, and were asked to take acetaminophen until recovery, or for a maximum of 4 weeks. (Ie, all subjects including those randomized to diclofenac received acetaminophen concurrently,)

Patients were randomized within 2 days to: 1) manipulation (both high-velocity and low-velocity) 2 or 3 times weekly + diclofenac (*Generic; Arthrotec, Searle; Voltarin, Novartis*) 50 mg twice daily, 2) placebo manipulation + diclofenac, 3) manipulation + placebo pill, or 4) double placebo.

Neither diclofenac nor spinal manipulation gave clinically useful effects on time to recovery from acute low back pain when added to advice and acetaminophen.

Both NSAIDs and spinal manipulation have been shown to have small beneficial effects in patients with acute low back pain. However, patients in these studies were not given acetaminophen and advice as in this study.

“We can reasonably assume that when quality baseline care is provided, previously effective treatments might no longer provide additional benefit.”

Conclusion: Patients with acute low back pain receiving advice and acetaminophen did not recover more quickly when diclofenac and spinal manipulation were added.

How should primary care clinicians in the U.S. act on this information? I believe a reasonable first treatment would be to give advice to remain active, avoid bed rest, and to reassure patients about a favorable prognosis, and to prescribe acetaminophen.

I doubt any clinicians would prescribe combined acetaminophen-NSAID. I doubt that the combination would be any more effective than either alone.

I would not dissuade patients from switching to an over-the-counter NSAID, or from consulting with a chiropractor if they felt they were not improving satisfactorily.

I would not deny a patient any beneficial effects of manipulation and NSAIDs, even if they are placebo effects.

Appropriate Exercise Program Improved Symptoms And Functional Status.

11-8 GROUP EXERCISE, EDUCATION, AND COMBINATION SELF-MANAGEMENT IN WOMEN WITH FIBROMYALGIA

This study evaluated and compared the effects of common self-management interventions on functional status, symptom severity, and self-efficacy in women with fibromyalgia.

Randomized 207 women ages 18 to 75 at 5 years after diagnosis (mean age = 50; BMI = 30; many with comorbidities) with confirmed fibromyalgia to 16 weeks of; 1) Exercise ; 2) A Fibromyalgia Self-Help Course [no exercise] or 3) Combined 1) and 2).

The exercise group and the combined exercise + self-help course groups showed greater improvement in function compared with self-help course (no exercise) group: In a score which assessed physical function, common symptoms, and general well-being, subjects in the combined exercise + self-help course gained the most clinically significant improvement. And also reported superior improvements in social function scores compared with the no exercise group.

The Fibromyalgia Self-Help course alone (no exercise) was associated with little or no improvements.

Conclusion: Progressive walking, simple strength training movements, and stretching activities improved functional status, key symptoms, and self-efficacy in women with fibromyalgia being actively treated with medication.

This approach has limited applicability. Many patients were excluded. Many dropped out of the trial. This program is not for everyone. It is for a select subset of patients.

Compliance with exercise would likely be greater in a group.

Primary care clinicians may enlist their physiotherapist associates and the local YMCA to help to implement the program.

I believe this type of program will be helpful in patients with fibromyalgia. Primary care clinicians may improve compliance by being enthusiastic about recommending it, and care in follow-up.

Exercise programs alone would be the most applicable. A 7-week educational course would be difficult to implement.

“There Is A Strong Case To Be Made That Too Many CT Studies Are Being Performed”

11-9 COMPUTED TOMOGRAPHY—An Increasing Source Of Radiation Exposure

This article reviews the nature of CT scanning, its main clinical applications, both in symptomatic patients and in screening asymptomatic patients. The largest increases in CT use have been in pediatric diagnosis (especially of presurgical diagnosis of appendicitis) and in adult screening.

An abdominal CT delivers at least 50 times the dose of radiation as a conventional abdominal X-ray.

In addition, many patients undergoing CT of the abdomen, receive more than one scan, often obtained on the same day—three scans in 30% of patients, and 5 in 7%.

Most of the quantitative information regarding the risks of radiation comes from survivors of the atomic bomb dropped in Japan—now over 60 years ago. A substantial cohort received radiation doses similar to those of CT. The mean dose in these survivors approximated the relevant organ dose from a typical CT study involving two or three scans. The risk of cancer in the Japanese group was significantly increased.

Another study concerned 400 000 radiation workers in the nuclear industry who were exposed to an average dose of radiation similar to that of a typical organ dose from a single CT scan for an adult. There was a significant association between radiation dose and mortality from cancer.

Children are at greater risk than adults from a given dose of radiation. They are inherently more radiosensitive because more of their cells are dividing. And they have more remaining years of life in which the resulting cancer may occur.

Although the risk estimates for individuals are small, the population risks may be large due to the increasing use of CT scans.

Despite the fact that most diagnostic CT scans are associated with very favorable ratios of benefit to risk, there is a strong case to be made that too many CT studies are being performed.

A message for primary care clinicians—think twice before requesting a CT study. Is this scan really necessary?

ABSTRACTS NOVEMBER 2007

Every Band Needs A Conductor. Everyone Needs a Medical Home

11-1 COORDINATING CARE: A Major (Unreimbursed) Task Of Primary Care

First contact care, continuity of care, comprehensive care, and coordinated care are attributes of primary care. Perhaps the most problem-ridden is the task of coordinating care of patients among the multiple entities beyond the primary care practice—specialists, ancillary services, pharmacies, hospitals, and home care agencies.

Referrals from primary care physicians (**PCPs**) to specialists often lack sufficient information. The reverse is also true. In this era of hospitalists, PCPs are often uninformed about what takes place during the patient's hospital stay.

“Coordination of care” applies not only to information exchange among care providers, but also takes place between providers and patients and their families. “In this realm, performance is far from stellar.” Physicians may not provide recommendations that are clear to the patient. Patients may misunderstand. Physicians often do not advise patients about diagnostic test results. Advice received from different physicians may conflict in part because the physicians fail to communicate with one another.

Care coordination is particularly important for Medicare beneficiaries because they see so many different physicians.

A study in this issue of *Annals*¹ asked geriatricians in an ambulatory setting to record the time spent doing several types of clinical interactions. Physicians spent considerable time providing care that took place between face-to-face visits rather than within the visit. Eighteen percent of the average physician's clinical work was between-visit work—usually without compensation. Most of the between-visit interactions were related to coordinating care with patients, families and other medical professionals. Lack of physician time and lack of payment are likely explanations for inadequate care coordination.

The majority of the contacts involved new symptoms; discussions with other professionals; family counseling; or managing chronic problems. Only about one third of between-visit interactions were administrative tasks which could be performed by office staff—calling in prescription refills; scheduling appointments with specialists; transmitting orders to a home care agency.

The great majority of the interactions were by telephone.

Coordinating care of elderly patients through the many services they receive is enormously complex because of the increasing number and variety of treatment sites they visit. Only through non-face-to-face

interactions, mainly by telephone, can PCPs integrate what happens at multiple sites and at patients' homes.

Patients expect their PCP to coordinate their care throughout the health system. For primary care to assume this responsibility 2 things must happen: 1) Everyone needs to have a medical home, and 2) Payers need to reimburse primary care physicians for care-coordinating work.

What is a patient-centered medical home? Patients enroll in a practice and join a panel of physicians within that practice. Patients know who is responsible for their care, and physicians know which patients they are responsible for. One responsibility is to coordinate care within the rest of the health care system.

Many patients (especially Medicare patients) do not have a clearly designated medical home in the sense of having a specified primary care physician. Many of them change PCPs from year to year.

Patients must learn the proper way to interact with their PCP so that she can coordinate their care.

Annals Int Med November 20, 2007; 147: 730-31 Editorial by Thomas Bodenheimer, San Francisco General Hospital, San Francisco CA

1 "How Much Time Do Physicians Spend Providing Care Outside of Office Visits?" A cross-sectional study , first author Jeffrey Farber, Mount Sinai School of Medicine, New York

Often Undetected and Undertreated In Primary Care

11-2 LATE-LIFE DEPRESSION: The Clinical Problem:

As many as 10% of adults over age 65 who are seen in primary care settings have clinically significant depression.¹ Depression is particularly common in women, in patients with chronic medical conditions, with persistent insomnia, and in those who have experienced functional decline, social isolation, and stressful life events such as the loss of a spouse. If symptoms of depression persist for over 2 months after the loss of a spouse, depression should be strongly considered.

Late life depression is often undetected and undertreated in primary care, especially in men and in ethnic minority groups. Reasons for undertreatment may include the stigma attached and the belief that depression is a normal part of aging.

Coexisting problems may be present: chronic medical conditions; pain; cognitive impairment (which can be associated with depression); alcohol and substance abuse.

Late life depression can last for years. It is associated with difficulty with social and physical functioning, poor adherence to treatment, worsening of chronic medical conditions, and increased morbidity and mortality. Older men have the highest rates of completed suicide.

Screening:

The Patient Health Questionnaire-2 is a two item screening instrument:

Over the past 2 weeks have you:

- 1) Had little interest or pleasure in doing things?
- 2) Been feeling down, depressed or hopeless?

The questionnaire is easily administered during a primary care visit. It is useful in identifying patients at risk for depression. One article reported that the sensitivity is 100%; specificity is 77% and positive predictive value is 14%.²

Evaluation:

Can be facilitated with the use of the Patient Health Questionnaire-9 (PHQ-9)³

Clinicians should assess the duration of the depressive episode, associated functional impairment, and history of depression. Ask about bipolar disorder.⁴

Also screen for cognitive impairment, and alcohol and drug misuse.

Management:

Drug therapy:

In primary care, antidepressant drugs are the most commonly used treatment for major depression. There are now over 20 antidepressant drugs approved by the FDA for treatment of depression in the elderly.

Selective serotonin-reuptake inhibitors (SSRIs) are the most often used. The elderly may be able to tolerate them better than other drugs. They may be especially useful in patients with co-existing pain, particularly neuropathic pain. Adverse effects, especially at high doses, may be troublesome. Start with low doses and gradually increase the dose. Elderly patients who do not adequately respond to SSRIs may respond when a second antidepressant drug is added.

Individual drugs:

Mirtazapine (Generic; *Remeron*) has both serotonergic and noradrenergic properties. It is associated with sedation, increased appetite, and weight gain. It may be particularly useful in patients with insomnia and weight loss. .

Bupropion (Generic; *Wellbutrin*-Glaxco-Smith-Kline) may cause jitteriness and insomnia. It may be particularly useful in patients with lethargy, daytime sedation, or fatigue.

Trazodone (Generic) is not recommended as a primary antidepressant drug because of sedation and orthostatic hypotension at therapeutic doses. Low doses may be useful for insomnia associated with depression.

Tricyclic antidepressants are effective, but are no longer considered first-line treatment because of adverse effects, and because of cardiotoxic effects in patients who take an overdose. More dropout rates compared with SSRIs.

One commonly used approach: Initial SSRI, with a switch to a different class if not effective or poorly tolerated. Up to 12 weeks treatment with antidepressant drugs may be needed to elicit a full response. Most patients have some response within 4 weeks. Full doses should be continued for at least 6 months after remission because recurrence rates are high after earlier discontinuation.

Even under the best of circumstances, only about 50% of patients have an adequate response to any given drug. Trials of alternative drugs with or without psychotherapy may be required.

Psychotherapy:

Several forms have been shown to be effective in elderly patients, including cognitive-behavioral therapy. If drug treatment is not effective, therapy, psychotherapy delivered by trained therapists in 6 to 12 sessions should be strongly considered. Efficacy is roughly equivalent to drug therapy. The combination may be used for severe or chronic depression.

Exercise programs:

Several trials suggest that short-term (eg, 12 week) supervised, group-based exercise programs involving walking or other forms of aerobic exercise can reduce depression. Such a program could be a first-line therapy for patients with mild or moderate depression.

Electroconvulsive therapy:

Several trials have established efficacy for severe late-life depression, especially in those for whom other therapy is not effective. Maintenance drug therapy should follow a successful ECT course because of the high rate of relapse.

What about patients with cognitive impairment or dementia associated with depression? Many clinicians prefer a step-wise treatment starting with an antidepressant drug before adding an anti-dementia agent such as a cholinesterase inhibitor or memantine.

NEJM November 29, 2007; 357: “Clinical Practice”, commentary by Jurgen Unutzer, University of Washington, Seattle.

Some antidepressant drugs are listed by GOOGLE *\$4 prescriptions*.

1 I believe we *should screen for any disease with a prevalence of 10%*.

2. The PPV answers the question—How many patients who answer positively (ie, true positive + false positive) to the questions are actually depressed? PPV depends on the prevalence of the disease in the cohort screened. If there are a high number of false positive answers (23% in this cohort), the PPV will be low.

3 The full *Patients Health Questionnaire* contains a 9 question section dealing with depression. It is available through GOOGLE

4. The *Mood Disorder Questionnaire* is helpful. Also available through GOOGLE

11-3 THE SAFETY OF STATINS IN CLINICAL PRACTICE

There has been a trend toward use of higher doses of statins because the extent of risk reduction from atherosclerotic disease is directly proportional to the degree to which LDL-cholesterol is lowered. Cholesterol-lowering is now recommended for a wide range of people at cardiovascular risk, including those at average and below average lipid levels.

Because statins are being used in higher doses and for more individuals, their safety is of considerable importance.

There are 6 statins now on the market and available in most parts of the world. The adverse effects on muscle and on liver enzymes generally apply to all statins, but other aspects of safety should not automatically be extrapolated from one statin to another.

This review concentrates on safety information derived from randomized trials of specific statins. In the review, “standard dose” refers to the commonly prescribed doses which typically lower LDL-c by 30-45%.¹

Maintaining very low cholesterol levels:

Observational studies have shown that people with low total cholesterol levels (eg, < 4.0 mmol/L; < 150 mg/dL) are at higher risk of subsequent death from cancer, respiratory diseases, hemorrhagic stroke, and non-medical causes than are people with higher levels. Some of these associations may be explained by reverse causality (ie, the disease is the cause of the low cholesterol). Concerns remain that lowering cholesterol to very low levels may be harmful.

Levels of < 4.0 mmol/L often occur in populations that eat low saturated fat diets. These populations have low rates of coronary heart disease..

Collective results from large randomized trials of statin treatment confirm that reducing cholesterol and maintaining low levels for at least 5 years is safe and beneficial.

Specific adverse effects of statins:

The only well-documented, consistent adverse effects are 1) muscle toxicity, and 2) effects on liver enzymes.

Many other possible adverse effects are listed in the product information, but lack confirmation. They are likely either rare or are not truly caused by statin treatment (at least in standard doses). There is limited safety information about rosuvastatin; *Crestor*.

Effects on muscle:

Myopathy (also termed myositis) is defined as any muscle symptom (pain, tenderness, weakness) accompanied by creatine kinase (**CK**) levels greater than 10 times normal.

In controlled trials of standard-dose statins there was a very low risk of myopathy (under 1 in 10 000). Among 25 000 patients randomized to 80 mg atorvastatin, no excess myopathy (vs placebo) was reported. Simvastatin 80 mg daily and rosuvastatin 20 mg daily have been reported to be associated with an increased risk of myopathy.

There is no clear evidence that statins cause myalgia (or muscle cramps), although this is widely believed.

Rhabdomyolysis is severe myopathy involving muscle breakdown and myoglobin release. This causes a brown discoloration of urine and risk of renal failure. CK levels usually exceed 40 times upper normal. All statins occasionally cause myopathy which could progress to rhabdomyolysis. It is rare with standard doses that have been on the market for years. The risk increases with higher doses. (Although risk from 80 mg atorvastatin remains very low.)

All statins can cause myopathy and rhabdomyolysis. The risk varies between statins. It is more likely with higher doses. Combinations of statins with some fibrates (especially gemfibrozil; *Generic*) increase risk. Risk is higher in patients with renal impairment, hypothyroidism, serious debility, and age older than 80.

Detecting myopathy: Product information recommends that patients be asked to report new or unexplained muscle pain or weakness, and that CK should be measured in such patients. However, these symptoms are common in untreated patients, and are not likely to be

due to the statin. Muscle weakness and bilateral proximal pain with no obvious cause are more specific symptoms. Such patients should have their CK measured.

The best means of detecting myopathy clinically is awareness of the main risk factors, in particular: understanding the potential of drug interactions (consult the prescribing information); having a high index of suspicion if high dose statins are prescribed; and paying particular attention to vulnerable patients.

If myopathy or rhabdomyolysis is detected, the drug should be stopped immediately. If the CK is very high, force fluids to protect the kidneys. CK levels should decline, and muscle symptoms and function should improve over a few days.

Effects on the liver:

A small percentage of patients experience a rise in liver enzymes (alanine and aspartate transaminases).

These increases, if due to statin, are generally seen within 6 months, are asymptomatic, and reverse on stopping the drug. They may reverse without stopping the drug.

Given the proven benefits of statins, labeling patients as statin-intolerant because of effects on liver enzymes has potentially important consequences for cardiovascular risk management, so needs to be done carefully.

There is no convincing evidence that the increases in transaminases are associated with liver damage, or any clear evidence of risk of hepatitis. The effect on transaminases seems to be dependent on high statin dose (atorvastatin 80 mg and simvastatin 80 mg). No cases of hepatitis or liver failure have been reported.

Product information recommends baseline assessment of liver function and contraindicates statin use in patients with active liver disease.

Routine monitoring of liver function after starting treatment at standard doses is no longer recommended. It is recommended for higher doses although there is no evidence of adverse outcomes. If the transaminases are two or three times normal, the drug should be stopped temporarily, and the patient should be monitored.

Non-alcoholic steatohepatitis (fatty liver) may improve with lipid-lowering therapy

Safety in vulnerable groups:

Alcohol: Most large trials eliminate people with excessive alcohol intake. But, there is no clear evidence that myopathy is more common among patients consuming large amounts of alcohol.

Pregnancy: All statins are contraindicated in pregnancy and when breast feeding.

Premenopausal women treated with statins should be warned to avoid becoming pregnant. There have been reports of congenital abnormalities when statins were taken early in pregnancy.

Warfarin: Occasionally patients will experience clinically important changes in anticoagulant control. Check for control when statin is started, stopped, or modified ²

Renal function: There is considerable evidence that most statins are safe in presence of moderate renal impairment. They might even preserve glomerular filtration and lessen proteinuria. Patients with creatinine levels 2 times normal are at substantially increased risk of cardiovascular disease. Data suggest benefits from statin in this group although they may be at increased risk of myopathy.

Elderly patients: No dose adjustment is recommended, although the elderly may be at increased risk of myopathy.

Heart failure: One large study reported that patients derived as much benefit as other patients with no evidence of any hazard.

Conclusion:

Statins have been extensively studied. They are well tolerated. They seem to be a remarkably safe group of drugs when used at their usual doses.

Myopathy and rhabdomyolysis are rare and increase with higher doses.

Muscle pain is common in middle-aged patients, but is unlikely to be caused by the statin.

CK measurement can exclude myopathy and allow safe continuation.

Myopathy can be kept to a minimum by knowledge of potential drug interactions, and the vulnerability of particular groups of patients.

Lancet November 24, 2007; 370: 1781-90 Review article by Jane Armitage, University of Oxford, Oxford, UK

1		LDL-c lowering	
Atorvastatin	10-20 mg	38% with 10 mg	<i>Lipitor</i> Parke Davis
Fluvastatin	40-80 mg	23% with 40 mg	<i>Lescol</i> Novartis
Lovastatin	40 mg	30% with 40 mg	<i>Generic</i>
Pravastatin	40 mg	34% with 40 mg	<i>Generic</i>
Rosuvastatin	10 mg	45% with 10 mg	<i>Crestor</i> ; Astra Zeneca
Simvastatin	20-40 mg	41% with 40 mg	<i>Generic</i>

Typically doubling of a dose produces an additional 6% absolute decrease in LDL-c
Cost: Some generic drugs can be obtained at standard doses for \$4 for a month's supply. Go to
GOOGLE \$4 prescriptions. The brand-name drugs cost between \$76 and \$112.

2. There are so many drugs which interact with warfarin, I believe, instead of trying to remember them, we should check the PDR every time another drug is added to warfarin or when warfarin is added to other drugs.

Both Brand-Name And Generic Manufacturers Have Responded In Ways To Advance Their Own Economic Interests

11-4 THE ONGOING REGULATION OF GENERIC DRUGS

Generic drugs account for 63% of all U.S. prescriptions. They sell at substantially lower prices than their brand-name counterparts.¹ They save consumers tens of billions of dollars per year. Their expanded role has been linked to an attenuation of overall price increases for prescription drugs.

Over the next 3 years, over 100 drugs will lose their patent protection. (Eg, *Norvasc*, *Imitrex*, *Fosamax*.) These 100+ drugs are currently responsible for \$50 billion a year in sales.

In 1984, Congress enacted a law that set rules under which generic drugs could compete with brand-name products. The law aimed to inject price competition into the prescription-drug market, while honoring the legitimate claims to intellectual property rights of drug manufacturers. The law also set out an abbreviated process for generic drugs to receive FDA approval: 1) bioequivalence must be established. [This obviates the necessity of conducting clinical trials.] 2) companies must adhere to FDA approved manufacturing processes. 3) generic-drug manufacturers may apply for approval and conduct tests of bioequivalence before the relevant patent expires.

The law also specifies a process for the resolution of patent disputes between generic-drug firms and brand-name firms.

These incentives have had profound effects on the market. The proportions of total expenditures on generic drugs have risen from 11% in 2000 to 16% in 2006; and the total prescriptions dispensed rose from 47% to 63%.

Both brand-name and generic manufacturers have responded to these requirements in ways that advance their own economic interests.

Brand-name drug manufacturers:

Price competition from low-cost imitators threatens the profits of brand-name manufacturers.

This reduces their returns and spurs them into action that may blunt the competition.

- 1) They now shield themselves against generic competition by carrying an average of 10 patents for each drug.
- 2) They have reacted to the prospect of patent expiration by creating reformulations of key products that use a different delivery system which can be patented. (Eg. A long-acting version) Such products may be introduced before the original patent expires, with the goal of inducing some users to switch to a product with a longer-running patent.
- 3) They may launch their own “authorized generic” version usually through a licensing arrangement with a generic-drug manufacturer. These products are often launched in cases in which a generic firm has successfully challenged a patent. Since the original manufacturer is licensing the right to produce its own drug, it is permitted to sell a generic form. This discourages competition.
- 4) Some manufacturers have entered into arrangements whereby a generic-drug company agrees to delay market entry in exchange for payments that settles its patent litigation.
- 5) In some cases, brand-name drug companies may find their own patented drug competing with generic version of rival drugs in the same class. They may devise ways to stem loss long before their patent expires. They may institute promotional campaigns aimed at differentiating their products in the minds of patients and doctors from those of rivals. They may report research that tries to persuade physicians and patients to continue purchasing the brand-name product. A recent campaign by Pfizer promoted the advantage of its statin drug *Lipitor* over a generic rival.

Generic drug producers:

Intense price competition also limits the profits of generic-drug manufacturers and leads them to seek ways of insulating themselves from intense rivalry. They have sought ways to gain some advantage over their rivals so as to be able to raise prices. One approach is to forge exclusive relationships with producers of the drug’s active ingredients. This blocks rivals from access.

NEJM November 15, 2007; 357:1993-96 “Perspective”, commentary by Richard G Frank, Harvard Medical School, Boston Mass.

1 Go to GOOGLE \$4 prescriptions

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Use Was Associated With Increased Activity and Decreased Body Mass Index and BP.

11-5 USING PEDOMETERS TO INCREASE PHYSICAL ACTIVITY AND IMPROVE HEALTH:

A Systematic Review and Meta-analysis

Because of its health benefits, the Department of Health and Human Services recommends “physical activity for most days of the week for at least 30 minutes for adults”.

More than half of all adults in the U.S. do not get adequate physical activity. About one quarter do not get any leisure-time physical activity.

Pedometers have recently experienced a surge in popularity for motivating and monitoring physical activity. Some guidelines recommend that adults take 10 000 steps per day.

The primary purpose of this study was to evaluate the association between pedometer use and physical activity. And to determine any association between pedometer use and body weight, lipids, fasting glucose, and BP.

Conclusion: Use of pedometer was associated with increased activity and decreased body mass index and BP.

STUDY

1. Literature search found 26 studies (over 2700 out-patients; mean age = 49) which met inclusion criteria—8 randomized, controlled trials, and 18 observational studies. Relatively few participants were over age 60; most were women. Duration of studies averaged less than 6 months.
2. At baseline, most participants were overweight (mean BMI = 30). Most were normotensive, and had relatively well-controlled serum lipids. Most were relatively inactive—a mean of 7400 steps per day.
3. All studies reported assessment of pedometer use and reported the number of steps walked per day. Studies were highly heterogeneous.
4. Determined the difference in steps per day, and effect on obesity, diabetes, hypertension, and hyperlipidemia.

RESULTS

1. Randomized, controlled trials: The number of steps per day increased by 2500 in the trial group as compared with the control group.
2. Observational studies: Pedometer users increased activity by 2100 steps per day over baseline.
3. Overall, pedometer users increased their physical activity by 27% over baseline. Having a step

goal was the key predictor of increased physical activity. Participants in the three studies that did not have a goal had no significant increase.

4. Participants who did not use a step diary did not increase activity over baseline.
5. Benefit was not noted when the pedometer counted steps in the workplace. (*Ie, apparently the increase in physical activity was related mainly to leisure activity. RTJ*)
6. Pedometer use associated with other health outcomes:
 - Reduced BMI by 0.38 from baseline.
 - Reduced BP by 3.8/0.3.
 - Lipid and glucose levels were not significantly improved.

DISCUSSION

1. Pedometer use was associated with increases in physical activity, a magnitude of about one mile of walking per day.
2. It was also associated with clinically significant reductions in weight and BP.
3. Setting a step goal and use of a step diary may be key motivators.
4. Workplace interventions were associated with relatively small increases in physical activity.
5. The degree of reduction of BP related to pedometer use is associated with a clinically significant reduction in stroke mortality.
6. Participants may have increased their activity just by virtue of knowing that they were being monitored.
7. “Our results suggest that the use of these small, relatively inexpensive devices is associated with significant increases in physical activity and improvements in key health outcomes, at least in the short-term.”

CONCLUSION

Pedometer use was associated with increased physical activity.

JAMA November 21, 2007 298: 2296-2304 Original investigation, review article, first author Dena M Bravata, Stanford University School of Medicine, Stanford, CA

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May Reduce The Number Of Days When Low Back Pain Occurs

11-6 LUMBAR SUPPORTS TO PREVENT RECURRENT LOW BACK PAIN AMONG HOME CARE WORKERS: A Randomized Trial

About half of home care workers in the Netherlands have a history of LBP.

In cohort studies, a history of low back pain (**LBP**) is reported to be a strong predictor of recurrence.

This trial evaluated the effectiveness of use of lumbar supports to reduce recurrent LBP among home care workers who had a history of LBP (secondary prevention).

Conclusion: Lumbar supports may reduce the number of days when LBP occurs.

STUDY

1. Controlled trial randomized 360 home care workers (mean age = 42; almost all female) to:
 - 1) Control group received a short refresher course on healthy work habits.
 - 2) Intervention group received a lumbar support in addition to the course.
2. The cohort included persons who performed medical care or domestic tasks as a home care worker. All had a history of 2 or more episodes of LBP in the past 12 months or were experiencing LBP at the time of inquiry,. None had a specific cause of LBP (eg, rheumatoid arthritis; vertebral fracture).
3. Participants in the intervention group were instructed to wear the lumbar support on working days on which they had, or expected they might develop, LBP.
4. Primary outcome = number of days of reported LBP, and the number of days of sick leave. All participants used a calendar to record the days per month they experienced LBP. Intervention group recorded whether they had worn the support. (A monitor of adherence.)
5. Duration of trial = 1 year.

RESULTS

- | 1. | Control | Intervention |
|--|---------|--------------|
| Mean calendar days of LBP: | 124 | 72 |
| Mean calendar days of self-reported LBP-related sick leave | 8 | 3 |
2. Total days of absenteeism from work—no difference between groups.
 3. There were small, but statistically significant differences in favor of the intervention group in pain intensity, functional status, and number of days of sick leave due to LBP
 4. The great majority of the intervention group were satisfied with the support, reported that their LBP

was more bearable with the support, and that the support made them more aware of their working posture.

5. In the analysis of participants who adhered to use of supports, there were stronger improvements in all outcome measures, such as days of LBP and sick leave. Participants who did not adhere to use of supports did not differ from controls for these variables.

DISCUSSION

1. There were almost 5 fewer days of LBP per month in the intervention group, and a clinically relevant decrease in severity of pain. "This represents great improvement in patients with low back pain."
2. The overall good adherence (78%) underscores the feasibility of using a lumbar support as a secondary preventive measure in home care situations.
3. "Lumbar support may be a valuable addition to secondary prevention strategies in the workplace."

CONCLUSION

In home care workers, lumbar supports may reduce the number of days when low back pain occurs, but not overall work absenteeism

Annals Int Med November 20, 2007; 147: 685-692 Original investigation, first author
Pepijn D D M Roelofs, Erasmus Medical Center, Rotterdam, Netherlands.

Neither Diclofenac nor Spinal Manipulation Reduced The Number Of Days Until Recovery
11-7 ASSESSMENT OF DICLOFENAC OR SPINAL MANIPULATIVE THERAPY, OR BOTH, IN ADDITION TO RECOMMENDED FIRST-LINE TREATMENT FOR ACUTE LOW BACK PAIN A Randomized Trial

Present guidelines for treatment of acute low back pain recommend that general practitioners should:
1) Give advice to remain active, avoid bed rest, and 2) Reassure patients about a favorable prognosis, and 3) Prescribe acetaminophen (*Generic; Tylenol*; paracetamol in the UK) as first-line of care.

NSAIDs (eg, diclofenac) and spinal manipulative therapy are recommended as second-line management options for patients with slow recovery. It is not known if adding these second-line therapies results in quicker recovery.

This study investigated whether addition of the second-line therapies would result in faster recovery in patients receiving first-line therapy.

Conclusion: Adding diclofenac and/or spinal manipulation therapy did not result in more rapid recovery.

STUDY

1. Followed 239 patients (mean age 40; mean duration of symptoms= 9 days) presenting to primary-care physicians with moderate pain and moderate disability due to acute back pain of less than 6 weeks duration.
2. Preceding the current episode, all had a pain-free interval of at least one month in which care was not provided.
3. Excluded patients who had: 1) Known or suspected serious spinal pathology, 2) Nerve root compromise (weakness, sensory loss, hyporeflexia).
4. At baseline, all patients were given acetaminophen 1 g four times daily, were given advice about low back pain, and were asked to take acetaminophen until recovery, or for a maximum of 4 weeks. (Ie, all subjects including those randomized to diclofenac received acetaminophen concurrently,)
5. Patients were randomized within 2 days to: 1) manipulation (both high-velocity and low-velocity) 2 or 3 times weekly + diclofenac (*Generic; Arthrotec*, Searle; *Voltarin*, Novartis) 50 mg twice daily, 2) placebo manipulation + diclofenac, 3) manipulation + placebo pill, or 4) double placebo.
6. Primary outcome = number of days to recovery.

RESULTS

1. Neither diclofenac nor spinal manipulation reduced the number of days until recovery compared with placebo drug or placebo manipulation during which time acetaminophen was continued.
2. Numbers at risk:

Days to recovery:	0	20	40	60	80	100
Manipulation + diclofenac	60	30	12	7	7	0
Diclofenac alone	60	24	11	11	8	0
Manipulation alone	59	28	13	8	5	0
Placebo only	60	29	11	7	6	0

(Ie, about half in each group recovered within 3 weeks; all recovered at 14 weeks.)

3. Nine % reported a possible adverse effect—equally in diclofenac and placebo groups.

DISCUSSION

1. Neither diclofenac nor spinal manipulation gave clinically useful effects on time to recovery from acute low back pain when added to advice and acetaminophen.
2. There were no significant effects on pain or disability at 1, 2, 4, or 12 weeks when diclofenac or spinal manipulation were added to baseline care (acetaminophen + advice).
3. Both NSAIDs and spinal manipulation have been shown to have small beneficial effects in patients with acute low back pain. However, patients in these studies were not given acetaminophen and advice as in this study.
4. “We can reasonably assume that when quality baseline care is provided, previously effective treatments might no longer provide additional benefit.”
5. A previous systematic review concluded the different types of NSAIDs are equally effective for acute low back pain. This suggests that the results from this trial with diclofenac could be generalized to other NSAIDs.
6. If patients have high rates of recovery with baseline care, and no clinically worthwhile benefit from the addition of diclofenac or spinal manipulative therapy, then GPs can manage patients confidently without exposing them to increased costs associated with NSAIDs or spinal manipulative therapy. “

CONCLUSION

Patients with acute low back pain receiving advice and continuing acetaminophen did not recover more quickly when diclofenac and spinal manipulation were added.

Lancet November 10, 2007; 370: 1638-43 Original investigation, first author Mark J Hancock, University of Sydney, Sydney, Australia

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Appropriate Exercise Program Improved Symptoms And Functional Status.

11-8 GROUP EXERCISE, EDUCATION, AND COMBINATION SELF-MANAGEMENT IN WOMEN WITH FIBROMYALGIA

Fibromyalgia is characterized by diffuse chronic pain for more than 3 months and multiple sites of local tenderness. It is prevalent. Symptoms are complex. Treatment outcomes are poor. The cause and pathologic mechanisms are not known.

It is associated with fatigue, sleep disturbances, stiffness, depression, cognitive disruption, and exercise intolerance.

Non-pharmacological treatments, primarily exercise and behavioral interventions are increasingly recommended for treatment.

This study evaluated and compared the effects of common self-management interventions on functional status, symptom severity, and self-efficacy¹ in women with fibromyalgia.

Conclusion: Appropriate exercise improved symptoms and functional status.

STUDY

1. Randomized 207 women ages 18 to 75 at 5 years after diagnosis (mean age = 50; BMI = 30; many with comorbidities) with confirmed fibromyalgia²; 1) Exercise³; 2) A Fibromyalgia Self-Help Course⁴ [no exercise] or 3) Combined 1) and 2).
2. Exercise interventions lasted for 16 weeks. They were offered at 2 community fitness facilities, and one hospital wellness center.
3. Primary outcome = change in physical function from baseline. Secondary outcomes = social and emotional function, and self-efficacy.
4. Follow-up = 6 months.

RESULTS

1. Of the original cohort of 356 considered for the study and eligible according to entrance criteria, 110 declined to participate; 39 did not meet inclusion criteria. Only 65% of the 207 randomized completed the 16 week intervention and follow-up.
2. The exercise group and the combined exercise + self-help course groups showed greater improvement in function compared with self-help course (no exercise) group:
 - A. In a score which assessed physical function, common symptoms, and general well-being, subjects

in the combined exercise + self-help course gained the most clinically significant improvement. And also reported superior improvements in social function scores compared with the no exercise group.

B. The 6 –minute walk performance improved in the exercise groups.

C. Bodily pain and fatigue improved in the exercise groups.

D. Superior improvements were also reported in the exercise groups in social function scores, mental health, pain, morning fatigue, vitality score, and depression.

3. In the exercise groups, improvements were sustained for 6 months.

4. Adding a self-help educational course to exercise improved outcomes.

5. The Fibromyalgia Self-Help course alone (no exercise) was associated with little or no improvements.

DISCUSSION

1. “An appropriately structured exercise program that involves progressive walking, and flexibility movements, with or without strength training improves physical, emotional, and social function, key symptoms, and self-efficacy in women with fibromyalgia being actively treated with medication.”⁵
2. “The observed substantial benefit of exercise, and enhanced effect when combined with education, and the maintenance of benefit at 6 months after completion of the group intervention, suggests that an intervention that addresses physical, psychosocial, and behavioral factors may be the best approach to self-management in women with fibromyalgia.”
3. “We believe that the data provide sufficient evidence to encourage health care professionals to recommend a program of progressive walking and flexibility, with or without moderate strength training, to their patients with fibromyalgia.”

CONCLUSION

Progressive walking, simple strength training movements, and stretching activities improved functional status, key symptoms, and self-efficacy in women with fibromyalgia being actively treated with medication.

Archives Int Med November 12,2007; 167: 2192-2200 Original investigation, first author Daniel S Rooks, Novartis Institute for Biomedical Research, Inc. Cambridge Mass

1 Self-efficacy is the confidence in one’s ability to perform a particular behavior or task. Self-efficacy

is believed to be a determinant of the fibromyalgia syndrome. It is a mediator of functional status and symptom severity that can be influenced by physical fitness. Exercise may improve self-efficacy by demonstrating the capacity to complete certain physical tasks through regularly performing particular exercise activities. The positive experience may lessen fear of pain and fear of movement.

- 2 According to the American College of Rheumatology criteria.
3. Actually 2 slightly different exercise programs. One with walking and flexibility exercises, the second with added strength training. I have combined the two to simplify this abstract.

Exercise consisted of twice weekly sessions for about 60 minutes of activity per session. Each session began with a brief warm-up, progressed to a progressive, self-determined moderate level of effort. One group received 45 minutes of walking followed by flexibility exercises. Another group received 20 minutes of walking followed by 25 minutes of strength training on a combination of machines, followed by flexibility exercises.

- 4 A 7- session program teaching about the condition, and self-management; techniques to accomplish daily activities, to manage symptoms, and to suggest ways to incorporate wellness activities, and exercise into daily life. No exercise actually performed.

- 5 No mention of the type of medication used in this trial.

Pregabalin (*Lyrica*; Pfizer) is approved by the FDA for treatment of fibromyalgia. Also for neuropathic pain, postherpetic neuralgia, and partial seizures. It is a structural derivative of gamma-amino-butyric-acid (GABA). Mechanisms of action are not known. In fibromyalgia patients (compared with placebo) it was associated with a greater improvement in global impression of change and increased time to loss of therapeutic effect. (PDR 2008 page 2524) Adverse effects are troublesome. It certainly is no panacea.

“There Is A Strong Case To Be Made That Too Many CT Studies Are Being Performed”

11-9 COMPUTED TOMOGRAPHY—An Increasing Source Of Radiation Exposure

It is estimated that 62 million CT scans are currently done each year in the U.S.—four million in children. Advances in CT technology make it extremely user-friendly.

This article reviews the nature of CT scanning, its main clinical applications, both in symptomatic patients and in screening asymptomatic patients. The largest increases in CT use have been in pediatric diagnosis (especially of presurgical diagnosis of appendicitis) and in adult screening. CT is considered cost-effective—though arguably no more so than ultrasonography in most cases. Screening in adults has been mainly for lung cancer, coronary atherosclerosis, colon cancer, and whole body screening.

There are 2 quantitative measures of radiation doses: 1) Grays [Gy] and milliGy [mGy], and 2) Sieverts [Sv] and milliSv [mSv] ¹

Typical organ doses from CT are considerably larger than for corresponding conventional radiography:

Typical doses in mSv:

Chest X-ray	0.01
Screening mammography	3
Adult abdominal CT	10
Barium enema	15
Neonatal abdominal CT	20

An abdominal CT delivers at least 50 times the dose of radiation as a conventional abdominal X-ray.

In addition, many patients undergoing CT of the abdomen, receive more than one scan, often obtained on the same day—three scans in 30% of patients, and 5 in 7%.

Most of the quantitative information regarding the risks of radiation comes from survivors of the atomic bomb dropped in Japan—now over 60 years ago. A substantial cohort received radiation doses similar to those of CT—less than 50 mSv. The mean dose in these survivors was about 40 mSv. This approximates the relevant organ dose from a typical CT study involving two or three scans in an adult.

The risk of cancer in this Japanese group was significantly increased.

Another study concerned 400 000 radiation workers in the nuclear industry who were exposed to an average dose of 20 mSv (a typical organ dose from a single CT scan for an adult). There was a significant association between radiation dose and mortality from cancer.

Children are at greater risk than adults from a given dose of radiation. They are inherently more radiosensitive because more of their cells are dividing. And they have more remaining years of life in which the resulting cancer may occur.

Although the risk estimates for individuals are small, the population risks may be large due to the increasing use of CT scans. It may be a public health issue in the future. It has been estimated that 4 out of 1000 of all cancers in the U.S. may now be attributable to radiation for CT scans performed in 1991-1996. By adjustment, the estimate from current CT use, the estimate may now be in the range of 1.5 to 2 per 100.

Conclusions:

“The evidence is reasonably convincing for adults, and very convincing for children.”

The widespread use of CT represents probably the single most important advance in diagnostic radiology. However, it involves much higher radiation exposure compared with plain X-rays. This

results in a marked increase in radiation exposure in the population. This is occurring just as our understanding of the carcinogenic potential of low doses of radiation is improving.

These conclusions are based directly on measured excess radiation-related cancer rates among persons who in the past were exposed to the same range of organ doses as those delivered during CT studies.

Despite the fact that most diagnostic CT scans are associated with very favorable ratios of benefit to risk, there is a strong case to be made that too many CT studies are being performed. There are particular concerns about use of CT to diagnose appendicitis in children.

Beyond clinical issues, a problem arises when CT is requested in the practice of “defensive medicine”. And when a CT scan, justified in itself, is repeated as the patient passes through the medical system—often a matter of lack of adequate communication.

Physicians often view CT in the same light as other radiologic procedures. A recent survey reported that the majority of radiologists and ER-physicians underestimated the radiation dose. A majority did not believe that CT increased the lifetime risk of cancer.

As technology advances, the dose of radiation from CT may decrease. Meanwhile, an option is to replace CT use, when practical, with other diagnostic options. If it is true that many CT scans are not justified, use of CT should be curtailed.

NEJM November 29, 2007; 357: 2277-84 Review article, first author David J Brenner, Columbia University Medical Center, New York.

1 The article describes the two measures. I do not know enough about radiation physics to elaborate. I leave it to those readers who are more knowledgeable than I am.

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