Evaluation of the Rossiter Program

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FROM THE DESK OF

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547-212

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Jim —

I'm a little surprised that you haven't been "leaked" a copy of this yet. Remember, it was written for an engineer.

I'd be more than happy to discuss any of the findings & conclusions with you. Just don't get to dig a head ache at it!!

Mark

On July 25-26, 1995 BAP held a demonstration of an exercise program offered by Rossiter & Associates. The details of this demonstration have been outlined by Dr. Bartlett in her memo of August 7, 1995. Briefly, these exercises were aimed at stretching certain muscle and tendon groups which have been isolated by the arm or foot pressure of a helper or "facilitator". The exercises have been designed mainly to prevent or alleviate cumulative trauma disorders of the upper extremities. Patients were selected for this demonstration primarily by having a history of CTD of the U/E and by their apparent willingness to cooperate with the program.

Methods

Patients were asked to fill out questionnaires immediately before and after the two-day demonstration as well as two weeks after the program. They were asked to describe and rate their pain on a scale of 0 to 10, where 10 is the worst pain they ever had (the Pain Index). They were also asked to estimate their future symptoms assuming one month of regular treatments. One patient (#1) had three different CTDs and was very careful about labeling each separately. They were lastly asked whether or not this program should be offered in the plant. Perceived improvement and amounts of medications needed were also recorded to corroborate their assessment of clinical changes. Most patients complained of hand/wrist symptoms. Questionnaires are included as Appendix I & II.

The Pain Index for all patients is recorded in each questionnaire. The amount of pain medication each patient took was recorded as equivalent daily milligrams of ibuprofen. For example: ibuprofen 1600 mg = nabumetone 1000 mg = naproxen 1000 mg; and ibuprofen 200 mg = ASA 325 mg = acetominophen 325 mg. If a range of pain or medication dosage was reported, then an appropriate average was used. For example: a PI of 2-3 = 2.5; 2-4 Advil per day = 600 mg ibuprofen daily.

Patients were asked whether they felt better, the same, different or worse (B/S/D/W). The results were occasionally altered depending on their comments, since several patients had checked "Same" or "Different" but their comments clearly stated that they were "Better". This was recorded as "Actual B/S/D/W".

Patients were asked if they continued to do the exercises after the initial demonstration. Only one (#2) said she had, but that they were not the Rossiter exercises! This person was felt to have been a negative influence on the program; she was actually trying to sell her own brand of health foods. She was subsequently excluded from relevant analyses.

The change in Pain Index (ΔPI) from before and after the demonstration was calculated as was the change after two weeks. The ΔPI from beforehand to the 30 day estimate was not calculated since nearly everybody expected no or little pain. Any change in the amount of medication needed was also calculated and similarly recorded in equivalent daily milligrams of ibuprofen.

Results

The complete data are recorded in Table I and each patient's results may be followed chronologically. After the demonstration, 11 of 12 patients stated that they felt better. The one patient who felt the same had cervical spine disease and was not likely to improve, anyway. At follow-up, 9 of 12 patients *still* felt better after 2 weeks! They attributed their improvement to

the exercises almost exclusively. No one had changed jobs during that time. One patient had been on vacation.

PIs of all patients are displayed in Graph I. It is clear that great improvement was made during the demonstration but that some of the pain came back during the ensuing 14 days. This is also evident in Graph 2 which reflects cumulative pain of all patients. Though the majority of patients had hand and wrist symptoms, all aspects of the upper extremity symptoms are displayed in Graphs III, IV and V, where patients' pains are broken down by anatomical site. Of particular interest is the fact that two patients had shoulder pain after the initial demonstration that was apparently caused by the exercises. Both felt that they would be better after 30 days of the same treatment. Both hand/wrist and elbow symptoms dramatically improved in all other patients, worsening slightly after 14 days, as expected. Few additional conclusions could be drawn regarding the small number of patients with elbow symptoms.

Focusing on patients with hand and wrist symptoms only, Table II displays relevant data. The $\overline{PI_1}$ was 5.75, while the $\overline{PI_2}$ was only 2.2 the second day. Even after 14 days the $\overline{PI_{14}}$ had only risen to 2.85. Amazingly, nearly every patient had anticipated almost no pain after 30 days of regular exercises. The change in Pain Index for each patient from day 1 to day 2 and from day 1 to day 14 is reflected in the ΔPI_{12} and ΔPI_{14}, respectively.

The change in how much pain medication, expressed in daily milligrams of ibuprofen, each patient needed is depicted as ΔMED. Seven of ten hand pain patients required less anti-inflammatory medication then they did initially. Five patients required no medication at all. Two patients required the same amount. One patient (#12) was taking more medication after 14 days, but that had been prescribed by her gynecologist for an unrelated problem. She also related marked improvement in the level of CTD pain. The average hand/wrist patient was taking 400 mg less ibuprofen daily at follow-up, compared with their initial medication needs (489 mg per day less if patient #12 is excluded).

To determine whether the clinical improvement was based on any continued exercises, the patients were compared by amount of post-demonstration exercise performed. Six patients claimed to have exercised rarely (once per week), five of whom claimed to have been "better" at the two week follow-up. Five patients never exercised, four of whom also claimed to have been "better". Both the $\overline{\Delta PI_{12}}$ and $\overline{\Delta PI_{14}}$ were slightly higher in the exercising group. Both groups required approximately the same amount of daily medication after 14 days, 267 mg vs. 220 mg.

However, if patients #12 (non-occupational medication) and #8 (non-CTD) are disregarded, the $\overline{\Delta PI_{12}}$ and $\overline{\Delta PI_{14}}$ of each group become quite similar: 3.0 vs. 3.13 and 2.4 vs. 2.74, respectively. On the other hand, a large difference appeared in the amount of daily medication needed by the exercising group as opposed to the non-exercising group, 80 mg vs. 225 mg. Unfortunately, this dramatic change is denied statistical evaluation by the small number of patients in the samples. These data are summarized in Tables III and IV and suggest strongly that the beneficial effects of the original program persisted for two entire weeks. Furthermore, if any additional Rossiter exercises were performed, additional benefit seemingly was gained as evidenced by less need for analgesics at follow-up.

Eleven of the twelve patients thought that the Rossiter program should be offered at BAP while one remained undecided (#8-supervisor with a non-CTD). Those in favor were divided 8 vs. 7 whether it should be offered before & after or during work with several patients obviously

voting for both.

The overall favorable responses to this program are reflected in the comments offered by the patients. Every patient had at least one favorable comment with the exception again of reticent #8 (No comment). Even patient #2, who was not a helpful volunteer, admitted that the program had "good potential for pain relief". Comments are summarized in the attached "Comments" section. Where multiple comments are offered, the first was after day 2 and the second after day 14.

Discussion

The Rossiter program was met with almost universal praise by the patients. The results were dramatic - a 50% pain reduction even after 2 weeks! This was associated with a marked reduction in the average amount of analgesic needed daily. Half of the carpel tunnel syndrome cases needed no medication at all.

In clinical studies it can be difficult to predict a placebo effect especially when assessing subjective notions such as pain (the placebo effect can be thought of as Medicine's equivalent of the Heisenberg uncertainty principle). It would be expected that some degree of pain relief might occur in some patients simply due to all the attention, time off work and free lunch. However, two weeks of *continued* pain relief, improved function and less need for medication in nearly every patient would all seem to confirm real clinical improvement. The degree of improvement seemed to be enhanced by continuing the Rossiter exercises - if only sporatically. Several patients related that they had difficulty remembering the exact routines. Failure to continue exercising at all was often due to a lack of an available partner at home.

One of the patients (#2) who briefly experienced shoulder pain after the demonstration was concerned about the expertise of those people helping with the exercises. She claimed that the person pushing on her shoulders was not responsive enough to her input regarding pain and pressure. This is a potential problem with the Rossiter program since not every partner will be an expert. Some may be too "macho", or they may forget their original instructions and intent. The Rossiter people were quick to address this and the liability issue, emphasizing that the patient is ultimately the one in charge.

Some patients had individual attention after the scheduled exercises - notably for back and foot pain. The patient with back pain (#5) was amazed at how much better his back felt - so much so he worked outside in the yard and hurt it again! One alternate patient, having a history of an old ankle fracture, found herself to be free from pain for the first time in over 20 years.

The overall Rossiter program seems very detailed and extensive. This demonstration only touched on the basics. I'm told by other companies that upper extremity cumulative trauma is the forte of Rossiter & Associates. The degree to which this program eventually might help back pain, sinus problems or headaches remains conjectural. These initial results with CTDs, however, are very impressive. The patients are already asking when the Rossiter program will be offered here.

Comments

#1 I noticed a big difference because... my hands are not numb (from writing this).
My right hand is still brace-free.

#2 ....it probably has good potential for pain relief. I don't feel I want it.

#3 This is a good idea if it takes away pain without medicines or surgery.

#4 If I was able to keep it up... I would have no or very little pain.

#5 I was very skeptical... and surprised at how much it helped my back.

#6 Definitely YES! (Should offer program in plant.)
The exercises really helped.

#7 The exercises have helped more than medication.

#8 No comment.

#9 The exercises have helped the pain.

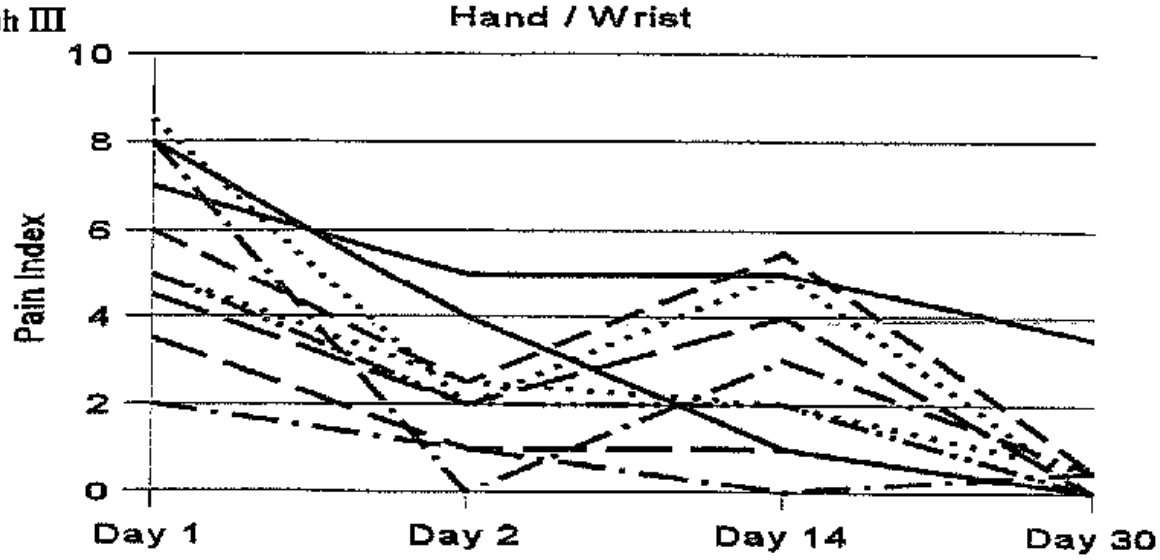
#10 My hands are not cramping as easily. I did not take any pain medication, did not wear braces and was more comfortable.
I benefited from the course... and am thankful for the opportunity... to do the exercises.

#11 This program could help a lot of people. I would be interested in being a facilitator. I didn't wear my brace at work yesterday and didn't feel pain.
A lot of benefits to this program...

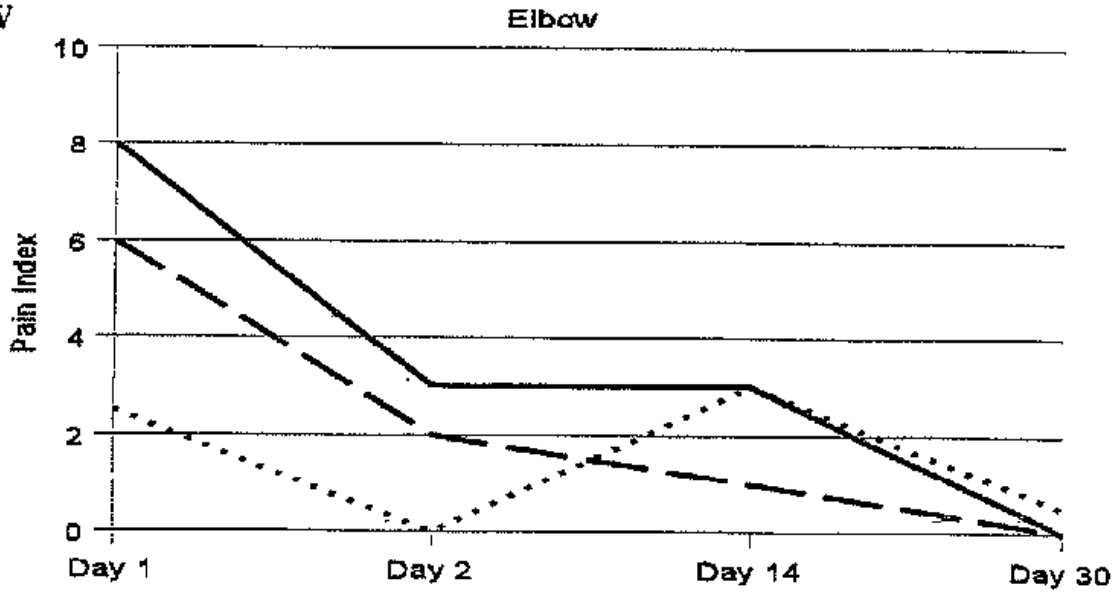
#12 This is better than... taking pain medicine... and could save a lot of money in the long run.
I would like to thank whomever was responsible... for these exercises.

Rossiter Program Results

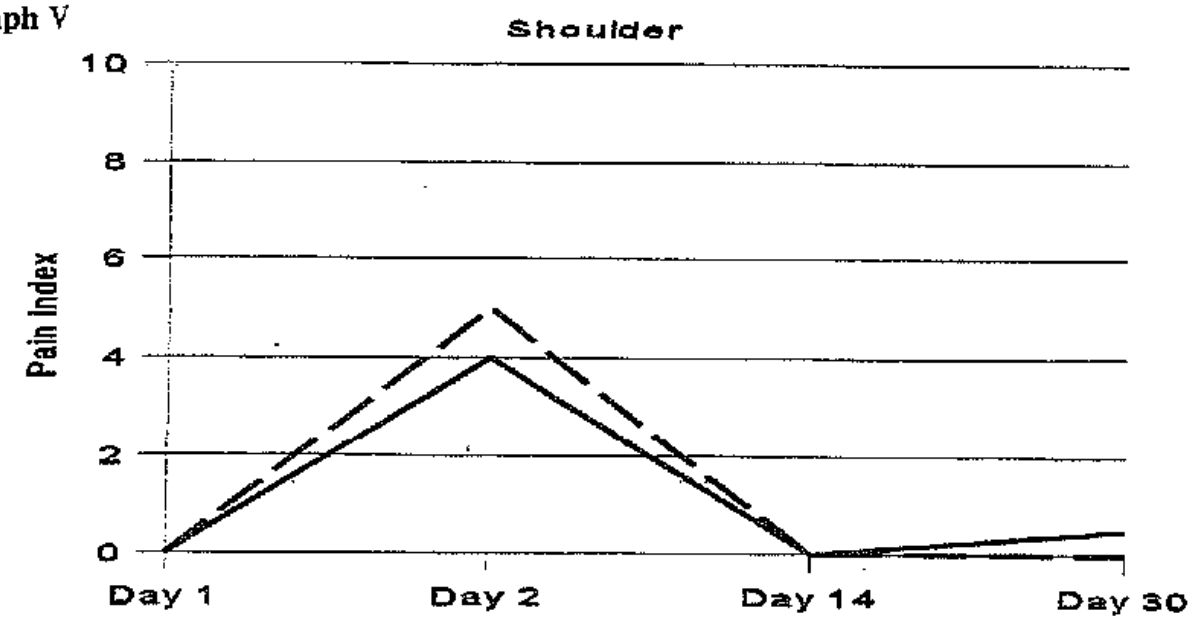
Graph III



Graph IV

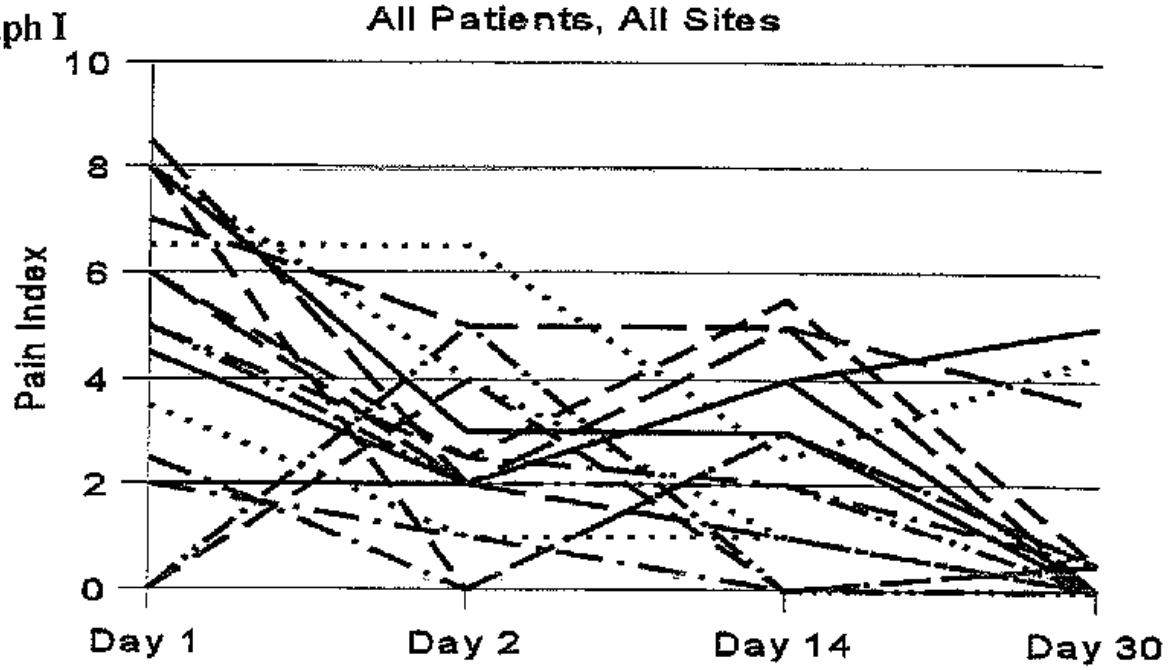


Graph V

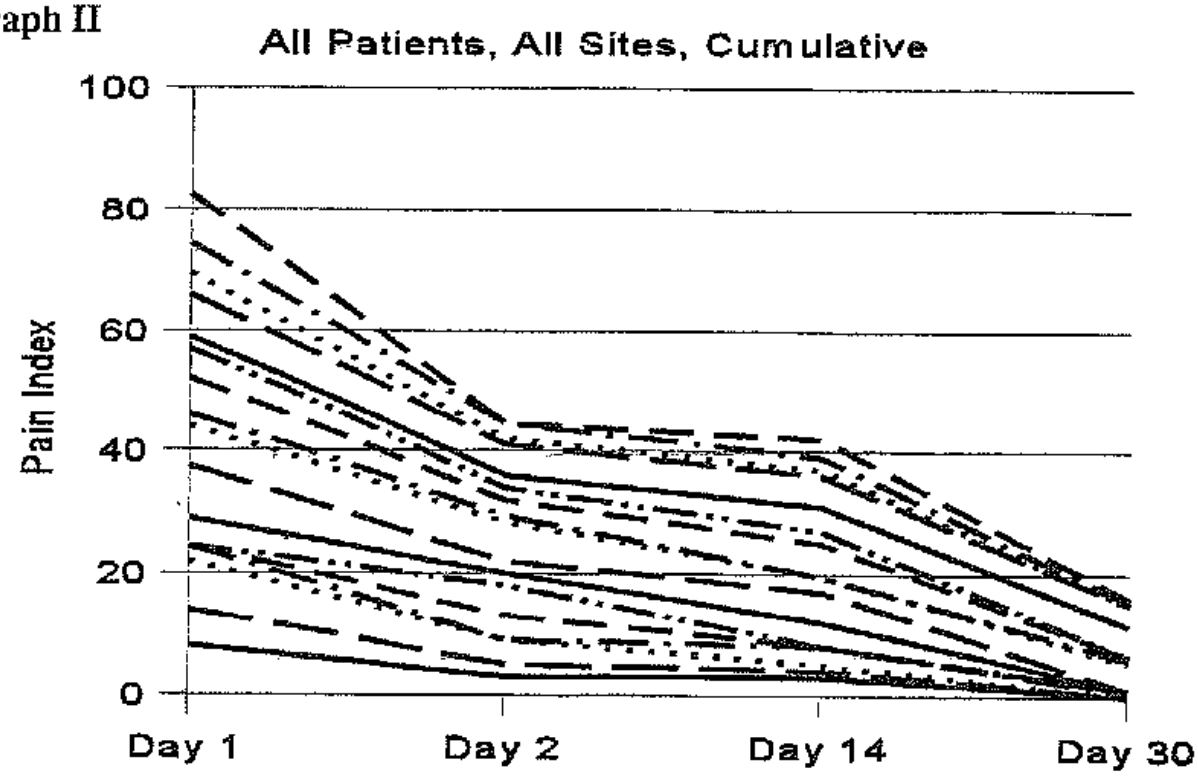


Rossiter Program Results

Graph I



Graph II



Rossiter Program Results

Table III Patients Rarely Exercising					
Pt. No.	ΔPI_{12}	ΔPI_{14}	Med/D_{14} mg Ibu	ΔMED mg Ibu	Actual B/S/D/W
1	4.0	4.0	0	400	B
6	3.5	0.5	0	800	S
7	3.0	3.0	0	1200	B
9	2.0	2.0	200	200	B
10	2.5	2.5	200	0	B
12	8.0	5.0	1200	+400	B
Mean	3.83	2.83	267	366	
Mean w/o 12	3.00	2.40	80	520	

Table IV Patients Never Exercising					
Pt. No.	ΔPI_{12}	ΔPI_{14}	Med/D_{14} mg Ibu	ΔMED mg Ibu	Actual B/S/D/W
3	2.5	0.5	600	200	B
4	6.5	3.5	300	0	B
5	1.0	4.0	0	800	B
8	0.0	+2.0	200	200	S
11	2.5	3.0	0	800	B
Mean	2.50	1.80	220	400	
Mean w/o 8	3.13	2.74	225	450	