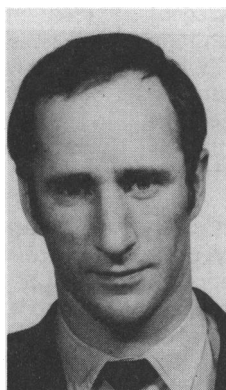


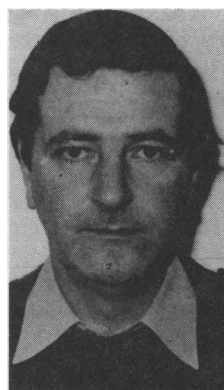
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### NAPROXEN SODIUM AND PARACETAMOL/DEXTROPROPOXYPHENE IN SPORTS INJURIES — A MULTICENTRE COMPARATIVE STUDY

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#### ABSTRACT

This paper follows up a previous paper reported in this journal. This study was a single-blind parallel comparison of naproxen sodium ("Synflex") and a paracetamol/dextropropoxyphene combination ("Distalgesic"). It was carried out in 184 patients suffering from soft-tissue disorders recruited from four centres.

More patients were considered cured and the pain score was significantly lower after seven days' treatment in the naproxen sodium ("NS") group. For those patients who received 14 days' treatment the total symptom score was significantly lower in the naproxen sodium group at the end of treatment. Two patients in the NS treatment group withdrew from the study due to lack of efficacy.

Fewer side-effects were reported in the NS group. Of the eight patients stopping treatment due to side-effects, two were in the naproxen sodium group and six in the paracetamol/dextropropoxyphene ("control") group.

The results suggest that a better clinical response to treatment and fewer side-effects may be obtained with naproxen sodium than with paracetamol/dextropropoxyphene in the treatment of soft-tissue injuries.

#### INTRODUCTION

Soft-tissue disorders have been previously treated with rest, elevation, support and immobilisation, with analgesics being prescribed to provide pain relief. Current thinking suggests that prostaglandins may be implicated in the inflammatory process associated with these injuries and that an analgesic drug which also inhibits prostaglandin production may be of benefit (Muckle, 1980).

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Naproxen is a non-steroidal anti-inflammatory agent which has potent analgesic, anti-pyretic and anti-inflammatory properties (Roszkowski et al, 1971). When administered as the sodium salt it is quickly absorbed and produces rapid pain relief (Filtzer, 1980; Sevelius et al, 1980a; Sevelius et al, 1980b). Consequently this study was set up to establish the comparative efficacy and side-effect profile of naproxen sodium and a widely used analgesic combination, paracetamol/dextropropoxyphene, in soft-tissue injuries. A preliminary communication on this study (Abbott et al, 1980) reported a better clinical response with naproxen sodium than with the analgesic combination in 98 patients. The completed study on 184 patients is now reported.

**PATIENTS AND METHODS**

One hundred and eighty-four patients from four centres were entered into a single-blind parallel comparison of naproxen sodium\* and a combination of paracetamol and dextropropoxyphene\*\*. Ethical committee approval and patients' informed consent were obtained.

Patients admitted to the study were those who had recently suffered acute musculo-skeletal disorders or acute traumatic sports injuries. Ninety-eight patients were armed forces personnel and 86 patients were recruited from general practice.

Patients were allocated randomly to one of two treatment groups, either to naproxen sodium capsules

("NS group") 275 mg (one capsule three times daily) or to tablets containing 325 mg paracetamol and 32.5 mg dextropropoxyphene ("control group") (2 tablets three times daily). Treatment was for seven or 14 days depending on the patients' condition at the seven-day assessment.

The mean age of the 93 patients (72 males and 21 females) in the NS group was 32.6 years, and in the control group the mean age of the 91 patients (70 males and 21 females) was 34.0 years. The two groups were found to be matched on admission for age, sex, injury severity, pain, tenderness, swelling and limitation of movement (see Table I).

The majority of patients (78%) were seen within a week of the injury occurring, the major diagnosis being muscle injury (29% of the injuries).

Severity of injury, pain, tenderness, swelling and ability to move the affected part were assessed on admission (Table I) and after seven and 14 days of treatment. A total symptom score was obtained by addition of each patient's score for severity of pain, tenderness, swelling and ability to move the affected part (limitation of movement).

Side-effects were elicited by indirect questions such as "How is the treatment suiting you?"

Patients were also asked to keep daily record cards assessing pain, ability to move the affected part and

**TABLE I**  
Admission symptoms – number of patients

		None	Mild	Moderate	Severe	Not Recorded
<b>Pain</b>	Naproxen sodium	0	32	59	2	0
	Paracetamol/dextropropoxyphene	2	28	56	5	0
<b>Tenderness</b>	Naproxen sodium	4	25	53	11	0
	Paracetamol/dextropropoxyphene	3	32	36	19	1
<b>Swelling</b>	Naproxen sodium	56	23	11	1	2
	Paracetamol/dextropropoxyphene	56	17	14	2	2
<b>Limitation</b>	Naproxen sodium	2	24	65	2	0
	Paracetamol/dextropropoxyphene	2	26	61	2	0
<b>Injury Severity</b>	Naproxen sodium	—	12	73	6	2
	Paracetamol/dextropropoxyphene	—	12	71	4	4

overall change in the injury since the previous day.

Analysis of results was undertaken using either the Wilcoxon Signed Ranks test or the Mann-Whitney U test.

\*SYNFLEX® Capsules, Syntex Pharmaceuticals Ltd.  
\*\*DISTALGESIC® Tablets, Dista Products Ltd.

TABLE II

Mean symptom scores at admission and after 7 and 14 days of treatment

	Admission Assessment		Day Seven Assessment		Day Fourteen Assessment	
	Naproxen sodium	Paracetamol/dextropropoxyphene	Naproxen sodium	Paracetamol/dextropropoxyphene	Naproxen sodium	Paracetamol/dextropropoxyphene
Pain	1.68 ± 0.51 [n=93]	1.70 ± 0.61 [n=91]	0.42 ± 0.62 [n=86] ****†	0.67 ± 0.80 [n=82] ****†	0.50 ± 0.76 [n=14] **	0.92 ± 0.79 [n=12] *
Tenderness	1.76 ± 0.71 [n=93]	1.79 ± 0.81 [n=90]	0.55 ± 0.76 [n=85] ***	0.65 ± 0.84 [n=82] ***	0.50 ± 0.65 [n=14] **	0.92 ± 0.67 [n=12] *
Swelling	0.53 ± 0.75 [n=91]	0.57 ± 0.84 [n=89]	0.06 ± 0.24 [n=85] ***	0.09 ± 0.33 [n=80] ***	0.14 ± 0.36 [n=14] *	0.36 ± 0.67 [n=11]
Limitation of movement	1.72 ± 0.54 [n=93]	1.69 ± 0.55 [n=91]	0.48 ± 0.65 [n=85] ***	0.69 ± 0.81 [n=80] ***	0.50 ± 0.76 [n=14] **	1.17 ± 0.94 [n=12]
Total Symptom Score	5.68 1.54 [n=91]	5.76 ± 1.88 [n=88]	1.54 ± 1.82 [n=83] ***	2.10 ± 2.38 [n=79] ***	1.64 ± 2.10 [n=14] **†	3.55 ± 0.07 [n=11] *†

\* Significantly different from admission values  $p < 0.05$  [Wilcoxon Signed Ranks test], \*\* $p < 0.01$ , \*\*\* $p < 0.001$

† Group means differ significantly  $p < 0.05$  [Mann-Whitney test]

## RESULTS

### Clinical Assessment

Table II shows the mean scores of pain, tenderness, swelling, limitation of movement and the total symptoms score on admission, at the day seven assessment, and at the day 14 assessment. As shown in Table II naproxen sodium was significantly better than the paracetamol/dextropropoxyphene combination in terms of pain at the day seven assessment. For those patients who carried on for 14 days treatment, the total symptom score was significantly different in favour of naproxen. There were no significant differences between the two treatment groups at the day 7 and the day 14 follow-up for scores of tenderness, swelling and limitation of movement. At day seven all parameters had improved significantly from baseline, for both groups.

Table III shows the number of patients judged to be cured, improved, the same or worse at the day seven and day 14 follow-up visits.

By day seven 92% of the patients assessed in the NS group were judged to be cured or improved, whilst in the control group 80% of the patients assessed were cured or improved by day seven.

### Patients Daily Record

Both treatment groups showed significant improvement over baseline in pain and limitation of movement each day. There were no significant differences between treatments.

TABLE III

Physician assessment of patient improvement

Day 7	Worse	Same	Improved	Cured
Naproxen sodium [n=86]	0	7	33	46
Paracetamol/dextropropoxyphene [n=81]	5	11	28	37
Day 14				
Naproxen sodium [n=14]	0	1	5	8
Paracetamol/dextropropoxyphene [n=11]	0	5	4	2

Patients' daily records of change since the previous day showed the NS group to be improved more significantly than the paracetamol/dextropropoxyphene combination by day two (Mann-Whitney  $p < 0.002$ ) (Fig. 1).

### Withdrawals from the Study and Side-Effects

A total of ten patients withdrew from the study. Two patients in the NS group withdrew from the study due to lack of efficacy and switched to other medication. Eight patients withdrew from the trial due to side-effects. Two of these were from the NS group, one because of nausea, and the other because of visual upset, lightheadedness and drowsiness. The six patients from the control group withdrew due to the following side-effects: (1) nausea and vertigo; (2) abdominal pain

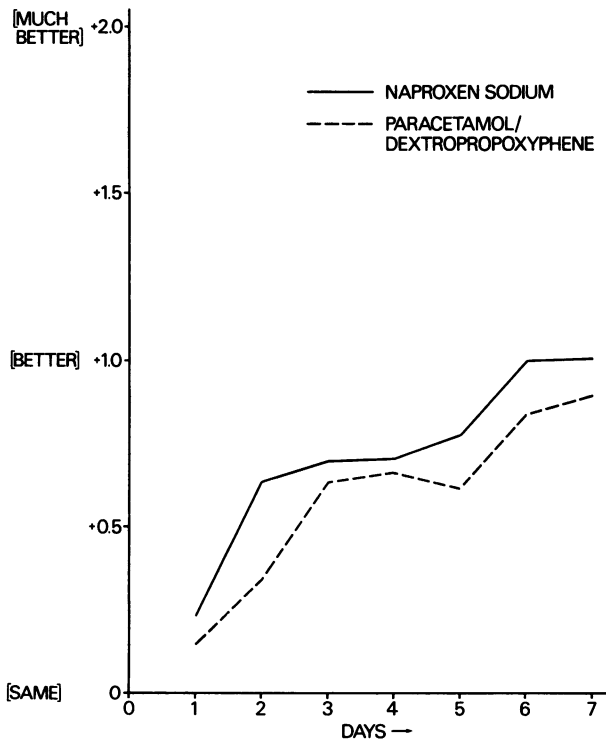


Figure 1: Patients record of change since previous day.

and constipation; (3) nausea, headache, tinnitus, visual upsets, dizziness, lightheadedness and slurred speech; (4) tinnitus and lightheadedness; (5) severe occipital headaches and drowsiness; (6) gastric flu and vomiting, probably unrelated to medication.

Table IV shows the number of side-effects reported. The majority of side-effects in the control group were

**TABLE IV**  
Side-effects reported during the study

Side-Effect	Naproxen Sodium	Paracetamol/ Dextropropoxyphene
Related to gastro-intestinal tract	13	11
Related to central nervous system	7	31
Other	6	6
<b>TOTAL SIDE-EFFECTS</b>	<b>26</b>	<b>48</b>
Number of patients involved	18	25

related to the central nervous system (31 side-effects reported) whereas in the NS group, central nervous system effects were few (seven reported) and the majority of side-effects were related to the gastro-intestinal tract (13 side-effects reported). However, a similar number of gastro-intestinal effects were reported by patients in the control group (11 side-effects).

**DISCUSSION**

Acute musculo-skeletal disorders and traumatic sports injuries are self-limiting and many would probably resolve without treatment. However, it has been shown (Crean, 1981) that pain or fear of pain is the biggest single factor in delaying full rehabilitation. Previous work has shown that analgesic anti-inflammatory drugs such as ibuprofen (Blonstein, 1974; Muckle, 1974), indomethacin (Buelvas, 1967; Leclerc and Autissier, 1969; Huskisson et al, 1973) and naproxen sodium (Wheatley, 1979) are of benefit in these conditions. Studies of naproxen sodium against indomethacin (Backhouse et al, 1980) and against ibuprofen (Bodiwala, 1981) have shown naproxen sodium to be similar to or better than the comparative agents in relieving symptoms and side-effects to be fewer in the naproxen sodium group.

This study extends the previous report comparing naproxen-sodium and a paracetamol/dextropropoxyphene combination (Abbott et al, 1980). The previous findings that the symptom scores in the naproxen sodium group tended to be lower than in the analgesic-combination group after seven days of treatment are confirmed. The NS group had a significantly lower pain score in this larger sample of patients. For the patients who required a further seven days treatment, the trend was again in favour of the NS group. The total symptom score in the naproxen sodium group was significantly lower than in the analgesic combination group.

Side-effects were fewer in the naproxen sodium group, and more patients stopped treatment due to side-effects in the analgesic-combination group.

An analgesic, anti-inflammatory agent such as naproxen sodium would appear to be useful in the treatment of non-articular soft-tissue injuries by producing fast pain relief with minimal side-effects.

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