

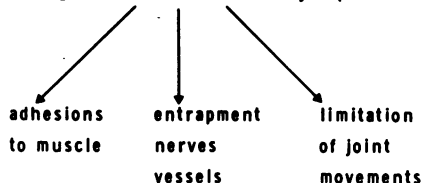


## SOFT TISSUE

Muscle - no repair

Bone - slow repair (3-12 wks.)

Collagen- scar tissue - ready repair (5+ days)



Analysis of number of days			(a) to commencement of training				and (b) to match fitness			
Diagnosis	Drug	No. of patients	Mean	t	df	Probability	Mean	t	df	Probability
Sprain	Aspirin	5	6.60 ± 1.29	2.72	15	0.02 > p > 0.01	9.2 ± 1.39	2.03	15	0.1 > p > 0.05
	Ibuprofen	12	3.25 ± 0.55				5.33 ± 1.12			
Trauma	Aspirin	25	6.64 ± 0.80	2.51	41	0.02 > p > 0.01	9.60 ± 1.04	1.99	41	0.1 > p > 0.05
	Ibuprofen	18	4.17 ± 0.58				6.78 ± 1.08			
All patients	Aspirin	30	6.63 ± 0.69	3.81	58	p < 0.001	9.53 ± 0.89	3.08	58	0.01 > p > 0.001
	Ibuprofen	30	3.80 ± 0.42				6.20 ± 0.79			

## DISCUSSION

It should be possible to modify the immediate reaction of soft tissues to injury by anti-inflammatory drugs, whether the reaction is due to prostaglandin formation or to the previously held histamine – bradykinin – serotonin theories.

In general practice, with those soft-tissue injuries seen within a few hours, adequate doses of an anti-inflammatory non-steroidal drug are likely to give rapid analgesia and an early return to work or sport. With chronic injuries, they are unlikely to have any effect other than the analgesic one.

## DISCUSSION

### ANTI-INFLAMMATORY DRUGS IN SOFT-TISSUE SPORTS INJURIES

*J. G. P. WILLIAMS* raised the possibility that aspirin might have delayed healing, as no "no-treatment" control group was used for comparison.

*D. S. MUCKLE* mentioned a small-scale trial in which 4 G. of aspirin daily was used, and gave better results than the lower dose. The beneficial effects of both drugs, aspirin and Ibuprofen, were largely dose-related, but Ibuprofen was shown to have fewer side-effects than other anti-inflammatory agents, and could be used in high doses.

*J. G. P. WILLIAMS* mentioned a trial he had done comparing Phenylbutazone with Ibuprofen, and in the small numbers studied, young patients free from chronic disease, there seemed to be more subjective side-effects from Ibuprofen than from Phenylbutazone.

*D. S. MUCKLE* agreed that side-effects in sportsmen are difficult to evaluate; the professional player needs his weekly wage packet and ignores minor ailments, but the amateur, looking to a distant Olympic medal, seems to have an enhanced body image and is easily upset by minor ailments. He had observed negligible side-effects in professional sportsmen on either Ibuprofen or Phenylbutazone.

*B. CORRIGAN* felt that the role of prostaglandins in soft-tissue injury was not proved, in contrast to its presence in chronic rheumatic diseases.

*D. S. MUCKLE* mentioned recent reports, given at a meeting of the British Orthopaedic Research Society relating to knee sprains in animals, contusions to muscles in animals and man, and ultra-violet damage to skin all increase prostaglandin production. Small animal experiments suggest that this prostaglandin surge lasts only some twelve hours, after which Ibuprofen blockage is not very effective.

Prostaglandins can be of benefit by delaying the immune response, but whether they delay healing is uncertain. They may delay fibrocyte formation, and F series prostaglandins are implicated in collagen biosynthesis.

*M. BUSSON* mentioned an unpublished trial with Ibuprofen, Indomethacin and a placebo used in the treatment of acute ankle injuries. The group treated with Indomethacin, the most potent inhibitor of prostaglandin synthetase, responded most rapidly, compared with the placebo group, and the Ibuprofen group were in between.

*J. P. S. ENGLAND* asked if Ibuprofen given before a match had any beneficial effects on injuries.

*D. S. MUCKLE* doubted the legality or ethics of such a procedure, even though this drug had not been shown to enhance performance in any way.

*J. G. P. WILLIAMS* has used prostaglandin inhibitors before manipulations and surgical procedures, but not as a properly designed trial.

*P. R. TRAVERS* pointed out that the concern the athlete feels over minor disability or malfunction does not imply that he is a hypochondriac; just someone who must keep his body in good condition in order to compete.

## OPEN FORUM

*P. R. TRAVERS* invited comments on the cardiovascular aspects of running, and jogging in particular.

*D. S. MUCKLE* summed up the problem by defining jogging as a hobby for the unfit. Too many think there is no need for training, and few try to get into condition first. Deaths have occurred in Canada and the USA while jogging, and in the UK as well, usually through ventricular arrhythmias. The value of preliminary medical examination, and of electrocardiography, is still controversial, but training with gradually increasing load before attempting maximum exertion is essential for the middle aged. Stroke volume will increase with training, and the resting pulse rate will decrease. Encouragement may be given by pointing out that, as running increases the bulk of the thigh muscles, it will have a similar effect on the heart.

*P. R. TRAVERS* recounted experience with hypertensive patients, who were given very carefully graduated exercise, within their own tolerance, and does not consider hypertension per se a contra-indication to exercise. Very few "abnormal" ECGs were noted, and in seven years only one was considered by a cardiologist to be significant.

With veteran classes in sport, many older people who resume training will have a slower resting pulse, which can easily be confused with the pathological bradycardia of the "sick sinus" syndrome.