To Greig
from Karel
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THE FUNCTIONAL APPROACH

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SUMMARY

Most therapeutic methods used in orthopaedic medicine effectively treat dysfunction, not pathology. Function and dysfunction are as real as anatomy and pathological anatomy. To treat dysfunction effectively, the therapeutic and even diagnostic approaches are fundamentally different. Therefore it is not enough to master the various techniques which are effective in orthopaedic medicine; it is as important to understand dysfunction. Otherwise the best of techniques may be used at the wrong place and at the wrong moment. Precisely because of this fundamental difference in approach between orthopaedic medicine and other branches of medicine, we make the evaluation of dysfunction the first and most important task in both classification and diagnosis. Twenty points which characterise and explain this difference are listed.

***Key words*: Function, dysfunction, reversible, pathology, chains.**

The therapeutic methods which are relevant for treatment in orthopaedic or myoskeletal medicine normalise function and not (structural) pathology. This is of fundamental importance, because one cannot pinpoint function to any single structure or localisation. Function is the result of the correlation and interplay of numerous structures, frequently at distant places in the motor system. Our task, therefore, is to uncover a chain of changes and, if possible, to find the most important link, or links, at any given moment of the 'pathogenetic chain'. This makes a fundamentally different approach essential so as not to use the best of techniques at the wrong place and the wrong moment. We would remind the reader that the central nervous system only knows about function, not about structure. How important is this difference and how unusual and difficult this approach is will be demonstrated.

1 The first and fundamental task in classification, and hence also in diagnosis, is whether we have to deal (mainly) with pathology or dysfunction.

2 Function (physiology) is as real as is anatomy (pathology).

3 Pathology can be defined as a rule both as to localisation and nature. Function on the other hand is the result of the correlation and interplay of a whole chain of different structures of various localisations.

4 Even where there is structural pathology there are also changes in function which cause clinical symptoms.

5 The clinical picture correlates better as a rule with the changes in function than with the structural pathology. Very frequently indeed pathological changes do not manifest themselves so long as function is not impaired. On the other hand, changes in function by themselves may cause very marked clinical changes in the absence of any (structural) pathology.

6 For the same reason even clearly diagnosed pathology can be clinically irrelevant (disc herniation at CT, spondylolisthesis, scoliosis, etc), whereas the dysfunction which can usually be diagnosed only clinically can be of decisive importance.

7 If we direct our therapeutic efforts at the pathological changes our therapy would completely fail in such a case; on the other hand, even if the pathological changes are important, we still may improve the patient's condition if we improve function - for this is exactly what can be achieved by rehabilitation. It is, however, necessary to be aware of the limits of what can be achieved.

8 The diagnostic task in pathological diagnosis is to localise the lesion exactly and to determine its nature (*principle of localisation*).

9 The diagnostic task in dysfunction is to determine the pathogenetic chain and to assess the correlation and relevance of its individual links (*holistic principle*).

10 The mechanism producing pain due to pathological changes corresponds to the nature of the pathology in the case; if, on the other hand, function is changed, the mechanism is mainly due to increased tension as a result of dysfunction.

11 If therapy is successful in a condition caused by pathological changes, it is continued until the lesion has healed, or the decision to operate is taken.

12 If therapy is successful in changes due to dysfunction, we shall probably decide to treat another link of the pathogenetic chain. If we have to treat the same lesion again, we should first consider whether there is not a more important lesion which we may have missed the first time. To change treatment each time is the routine approach.

13 In pathological conditions, success is achieved by effective drugs (pharmacotherapy), or possibly by surgery. In dysfunction, success depends on the correct choice of the relevant link, or links, of a chain at the right moment.

14 From what has been said, it follows that the functional approach is much more difficult. We may compare pathology to the 'hardware' and dysfunction to the 'software' of the motor system.

15 Therefore who ever only treats dysfunction at the point where pain is felt is lost - or rather his patient is lost.

16 Because changes in function are reversible in nature it can be expected that, if they are adequately treated (and the case is not very complicated), the effect of treatment is immediate, giving the impression of a 'miracle cure'; which, however, is quite predictable.

17 Modern technology enables us to diagnose pathological lesions much more effectively, even if irrelevant, and also to objectivise them. In dysfunction, technology is usually of little use and very cumbersome. Clinical skill remains decisive. This, however, is considered 'subjective'.

18 Psychology is important in every type of patient for its

influence on the autonomic nervous system, eg stress. In dysfunction, however, psychology is part of the pathogenetic chain because the locomotor system is the effector of our mental activity, the organ of *voluntary* movement. This is further borne out by the fact that pain is the most constant symptom, and that tension and its relaxation play a very important role. It is, however, necessary to decide how relevant the psychological factor is in each case and how amenable to treatment.

19 The relationship of cause and effect usually presents no major problem in conditions caused by structural pathology. On the other hand, it can be very subtle in changes due to dysfunction; what was originally the cause may become secondary and vice versa. Chronic pain of any origin will produce changes in motor patterns or stereotypes which in turn will cause dysfunction perpetuating pain. Chronic joint movement restriction and trigger-points cause impaired mobility of the fascias, which in turn produce joint movement restriction and muscular trigger points.

20 Statistical methods are very useful in well-defined pathology and should be mandatory in this field. It is, however, much more difficult to apply them in changes of function. Even for diagnosis, the same clinical condition (eg headache) can be the result of a long chain of various disturbance, the relevance of each link constantly changing. In therapy, if we have treated one link successfully, it would be nonsensical to repeat the same treatment. If therefore there are still symptoms left, we have to treat another link in the chain. If the patient is then without symptoms, this by no means implies that the first treatment was of no avail. However, this is very difficult to assess by statistics.

We have tried to point out and to illustrate the fundamentally different approach once we have made the crucial diagnostic distinction between a lesion of *structural* or of *functional* pathology. For this reason it is not enough to learn the various important and sophisticated therapeutic techniques used in musculoskeletal (orthopaedic) medicine. It is at least as important and difficult to master the functional approach - 'functional thinking'.

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LETTER TO THE EDITOR

Dear Sir,

MANIPULATION IN GENERAL PRACTICE

I was interested to see Dr Barker's article Spinal Manipulation: a General Practice Study (16(2): 42) He found that a significant number of people were improved by manipulation at the time of first consultation with a recent history of onset of back pain. These findings are similar to mine published in 1984 (Annals of The Royal College of Surgeons of England Vol 66 p52) of patients seen in an orthopaedic clinic. Again a short history was one of the factors that produced the best results; but I also noted that there was a 'mechanical pattern of back pain' in which there was restriction of one arc of movement and not its opposite and, in particular, that extension of the lumbar spine was restricted and painful more than flexion (which is more usually restricted in genuine disc protrusions).

I hope that with better education of doctors in musculo-skeletal matters it will not be too long before it is the norm for patients to be manipulated by their GPs when first seen. In the meantime, I hope that more doctors will take the trouble to attend the various courses offered to enable them to become more knowledgeable in the subject.

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