Osteo-Articular Rheumatism and Sport

by Dr. Francisque Commandré *

A football trainer or selector, talking about the search for “talent” on a Radio “France-Inter” sports programme on Saturday 25th September 1982, let fall some significant words : “It’s either make or break”.

Medical records are a good, straightforward indication, but the good player is really chosen by the ground. These remarks on the radio are crudely summed up in the expression “make or break”.

Also, the pathology of an athlete’s locomotor apparatus is rich and degenerative, made of cartilaginous, bony, tendinous or muscular lesions resulting from fractures, tearing, brutal ruptures or, above all, “fatigue” following microfractures of the tissue structures due to excessive osteo-articular consumption and a de luxe physiology (degrees of mobility are exceeded, or “hunted down”).

What is the role of the sports doctor and especially of the practitioner in the prevention of these attacks on the locomotor apparatus arising from sport ?

His role here is an essential but very difficult one. It is the role of the athlete’s “hygienist”, his “working doctor”. It is the role of “health adviser” : he will select, guide, warn, inform and supervise.

This “health adviser” must deal with three concerns :

– the child who wishes to take up some sport or other
– a top-class athlete hampered in his activities or recently injured. What can be done to get him back to form rapidly and to avoid this handicap ?
– finally, a patient who wishes to maintain a certain level in sport and at the same time lead a comfortable life...

Prevention is possible on two levels :

– medical
– technological.

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The medical level

Various means of forestalling damage are available to the doctor:

1) A medical aptitude test
A certificate of non-contra-indication for competitive sport

Medical follow-up

According to the law, every individual, whatever his or her age, who wishes to join a sports club or take up competitive sport, must undergo a medical check-up, which may only be carried out by a doctor holding the C.E.S. diploma in sports medicine or approved by a sports federation. This check-up must be adapted to the sports which the person wishes to practise – games or top level competition.

As far as the locomotor apparatus is concerned, this examination pays particular attention to:
- a careful analysis of the musculature, of the tendons, and of osteo-articular laxity,
- a study of the morphology, the stature and the height of the subject.

The skeleton must reveal its maximum worth and its faults. Its congenital or acquired malformations, especially of the rachis, cyphosis, scoliosis, anomalies in the lumbosacral pivot, evolutionary or non-evolutionary rachidian dystrophy, isthmic lysis with slipping vertebrae, dysplasia of the hips, etc.

X-rays may even be ordered, either to confirm a diagnosis, or to fulfil a legal obligation (Professorat d’Education Physique), but also for sports with high lumbosciatic risks: judo, parachuting, motor-cycling, etc. However, we must be able to temper our opinion according to the individual’s request for almost all sports may generate lumbar pain. The only one to escape this, under certain conditions, is Swimming.

This aptitude test is particularly important for the adolescent whose immature skeleton, which is still growing, will suffer overloading (over-training, over-exertion of effort) and necessitates regular monitoring and “osteo-articular” follow-up, and immediate alert at the slightest pain (often called “growing pains”). This medical follow-up gives guidance on good diet (drinks, food, etc.) and dental hygiene and O.R.L. (infectious foci in tendon pain).

2) Selection and Guidance

It is often a delicate matter to advise this or that sport. The individual is drawn towards a physical activity which is contra-indicated by his locomotor apparatus: a slim, slender Achilles tendon makes long distance running inadvisable; medium height is not much encouragement for basketball!

There must be firm, but tactful negotiations and discussions, not only with the child, but even more so with the parents, who would like to see their own dreams fulfilled.

This preventative side is important. The detection of very tall players for basketball is the best example. Great height must be anticipated! The age according to stature (height), the age according to bone development (maturation) must be compared and followed, bearing in mind the great imprecision in this area.

Finally, great osteo-articular laxity may be good for dancing or gymnastics, but it is a predisposition for sprains! What a tightrope the doctor must walk.

3) Therapeutic modalities to be followed

We will not enter into details on this here. Suffice it to say that the therapy must mean maximum recuperation. Flexible contents, respect for the Tipton rules: the 6 weeks necessary to the physical repair of ligaments, tendons, etc., to avoid cartilage resections, rehabilitation, then re-training, etc.

The technological level of prevention

There are several aspects to the prevention of muscle, tendon and osteo-articular traumas:
- the acquisition of an individual sports technique which is as near perfect as possible. This abolishes clumsy, unto-ordinated movements, and especially ensures perfect co-ordination between the agonistic motor muscles and the antagonistic restraining muscles. The slightest fault between the two leads to stretched, strained muscles.
- it is conditioned by optimal physical condition. When this is good, there are no accidents. When it is low, fatigue leads to accidents.

- also, well-balanced training is essential to get into form. Undertraining (in small amateur clubs or because of matters outside sport) or over-training (top competition) leads to a lack of form.

  Training must therefore be rational, precise, and regular. For the locomotor apparatus, it must:

  – loosen up the tendons, articulations (ankles, feet, muscles, etc.) and from an early age, stretching,

  – increase the volume of myofibrils, the development of blood capillaries through a musculation which is dynamic rather than heavy, which would injure the tissues,

  – co-ordinate the muscle groups, facilitate reflexes, and proprioceptivity.

The repetition of ordinary movements, singly or severally, under supervision, makes this possible.

This training must be well codified, balancing work on endurance, stamina and speed, according to this or that sport, progressive cycles alternating with periods of recuperation.

The Supervision and conduct of the warm-up are of major importance: the efficiency of the muscular contraction by the lowering of the muscle viscosity and the increasing of its metabolism.

Muscle play ordination, the achievement of the “steady state”, all facilitated and improved.

This warming up includes massage, adaptation to climatic and environmental conditions, jogging, limbering up of muscles, tendons and articulations, etc.

The trainer has a fundamental role to play, aided to a greater or lesser extent by the physiotherapist, and the doctor.

**The choice of equipment**

Facilities for sportsmen and sports areas have seen very great improvements, thanks to specialized research groups, often multidisciplinary (engineers, physicists, doctors, trainers, etc.).

The choice of equipment may vary according to the climate, terrain, day or night. New textile fibres, specially adapted shoes, etc., all contribute.

Long or short-sleeved singlets, loose or close-fitting, shin guards, knee pads, ankle pads, all the pads used by American football players are gaining ground, together with specially adapted waterproof clothing, shoes

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INDEPENDENT VIEWS

X-ray examination for tracking down predisposing anomalies. In this case, a stage one L5 on S1 spondylolisthesis, by isthmic lysis.
which can be altered in length, and in the
lay-out of the studs, according to the weather
and the quality of the ground, screwed in
“long” or “short”, etc., hence the importance
of the podoscopic examination and a check on
the wear of the shoes, which many authors
stress (J. Braun, J. Turblin, etc.).

J. Turblin noted :
- 35 % malformations of the arch of the foot
- 15 % disparities in lower parts of the body
- 10 % malformations of the knee
- 10 % malformations of the rachis, - gloves,
choice of racquet, modification of javelins.

To paraphrase S. Braun, who recommends
“a shoe for every player”, it should be
stressed that “the equipment used must be up
to the standards of each athlete, according to
the quality of the ground and weather, etc.”.

Better security is conditioned by the proper
adaptation of equipment by increasing perfor-
mance and decreasing micro-traumatisms or
sharp traumatisms.

But, it comes from a strict study of the quality
of the ground: soft terrains (lawn, beaten earth,
ashes) ; hard terrains (tarmacadam, quick,
tartan, green set), which modify the foot’s
adaptation to the ground, increasing or
decreasing vibrations on the skeleton. The role
of the shoe is to absorb these vibrations
(hence the value of soles with cushions of air
in an air-filled synthetic material) (jogging,
achilles tendons and gonaligia and tarmaca-
dam !).

Prevention in the young person and
adolescent

Young people and above all adolescents,
bringing an immature skeleton to sports
practice, a factor in early maturation, (although
this datum may be reviewed) must be subject
to a particularly careful aptitude test and those
who intend to go in for top level sport must :
- work to build up protective muscle, to
stabilize the bony jigsaw puzzle, shrouding
the rachis, producing protective cushions –
“a muscular safety belt”,
- build up a gestural technology, without
osteo-articular tension, without excessive
traction on the tendons, with ease and
flexibility, in order to develop proprioceptive
capacities to the maximum,
- acquire excellent physical condition
(increase in aerobic capacity, walking, etc.)
on a personal rythm, gradually building up
without excess, by modulating the bio-
constraints,
- limbering up in order to fight against stiff-
ness in the joints, muscular retractions,
achieving stretches and postures, to be
practised before every “serious" warm-up,
in a slow, progressive manner, and by
respecting the physiological norms (harmful
movements too-rapid return of an injured
athlete - respect for the Tipton data).

What conclusions can be drawn ?

Any physical and sporting activity must be
practised after careful technological study,
training and limbering up of the osteo-articular
apparatus, without excess after 40-50 years,
by measuring out the effort, especially if the
athlete is resuming or beginning his activities.
Prudence is not synonymous with age.

Very particular supervision must be carried
out among children and adolescents whose
skeletons are immature and fragile. The
apprenticeship in sport must be progressive
and protected by training and medical supervi-
sion.

Finally, recreational sport, like top competi-
tion sport, calls for sports equipment to be
adapted to prevention : from the shoe and the
ground to the helmet and the chin guard, in
order to protect and improve performances.

This aspect can only be born of close
collaboration among trainer, athlete, doctor,
engineer, and biomechanic. The work carried
out by B. Auvinet on the rider’s rachis has
underlined this aspect very well. The posture
and movement of the rider leads to attacks on
the vertebrae. A modification of the rider’s seat
can avoid this and this research ensues from
the use of riding in rehabilitation. F. C.

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