A *Lateralidade* Anatómica e Biomecânica. Sua Repercussão na Assimetria Morfológica e na Patologia Traumática do Esqueleto Axial e Apendicular do Atleta.

Estudo efectuado em 1859 atletas adolescentes, praticantes de Andebol, Basquetebol, Futebol e Voleibol.

Dissertação de candidatura às provas de doutoramento na área das Ciências do Desporto, apresentada à Faculdade de Ciências do Desporto e de Educação Física da Universidade do Porto

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Introdução

Após 38 anos de vida inteiramente dedicados à minha grande paixão, o Desporto, primeiro como praticante e depois como médico e *professor*, penso ter adquirido o direito de poder afirmar sem recurso a *estudos longitudinais, transversais, horizontais ou verticais*, que os desportistas são diferentes. Só quem pratica e convive o dia a dia do desporto, se apercebe que o atleta é diferente. É diferente porque é mais alegre, é diferente porque é mais forte, é diferente porque é mais objectivo, é diferente porque é mais estável psicologicamente, é diferente porque é diferente.

A sociedade progressiva e doentiamente cada vez mais materializada e *associal* em que vivemos, seria bem diferente se utilizasse o velho aforismo do desporto de *Mens sana in corpore sano* e o aplicasse àqueles por quem pouco ou nada temos feito - as crianças. Com certeza iríamos criar um verdadeiro *lobby*, constituído por milhares de crianças altas e baixas, pobres e ricas, superdotadas e menos dotadas, cuja característica comum se resumiria a um simples facto - a partir de um *corpore sano* obtiveram uma *mens sana*.

É esta paixão que por vezes cega e tira a razão, que nos estimulou na procura de mais informação sobre os efeitos da actividade física sobre os jovens em fase de crescimento, fundamentalmente no que se refere a variáveis antropométricas da coluna vertebral e dos membros inferiores, assim como das lesões das suas estruturas esqueléticas.

Nunca será fastidioso relembrar que continuamente se tem sido demonstrado, que a actividade física se revela como extremamente importante para o desenvolvimento pleno da criança, e que a mesma constituirá no período de crescimento uma das suas necessidades básicas. Durante a fase de vida intra-uterina as articulações só se formam se houverem movimentos fetais, e durante a terceira idade o número de fracturas por osteoporose diminui drasticamente se for receitado para desgosto das multinacionais um *medicamento* pouco dispendioso: R/ Actividade física moderada e contínua.

Incluída na fase de crescimento encontramos a *crise pubertária*, um período extremamente importante, não só do ponto de vista físico como psicológico. A puberdade compreende uma vertente ascendente que corresponde a dois anos de crescimento acelerado, sendo usualmente nos rapazes dos 13 aos 15 anos de idade e nas raparigas dos 11 aos 13 anos de idade. A vertente descendente caracteriza uma fase de defervescência, em que velocidade de crescimento diminui geralmente depois dos 13 anos de idade óssea na rapariga e depois dos 15 anos de idade óssea no rapaz. Quatro características principais dominam o período pubertário:

- aceleração brusca do crescimento em altura;
- maturação da morfologia corporal;
- desenvolvimento dos caracteres sexuais;
- caracterização definitiva dos rapazes e das raparigas.

Esta *crise do crescimento* em altura inicia-se pelos 10/11 anos nas raparigas e pelos 12/13 anos nos rapazes, embora sejam possíveis grandes variações como se verifica nos rapazes, onde o pico do crescimento poderá variar entre os 10 e os 16 anos de idade. Em ambos os sexos a *crise* dura 2 a 2 anos e meio. Durante o pico de crescimento pubertário os rapazes crescem cerca de 20 cm, facto que resulta fundamentalmente do crescimento do tronco. No pico da fase rápida do crescimento e por volta dos 14 anos poderá haver um crescimento de 10 cm por ano. Na fase final do pico pubertário observa-se uma rápida diminuição da velocidade de crescimento. As raparigas atingem cerca de 98.0% da altura definitiva nesta fase, que corresponde aos 16 anos e 1/2, enquanto os rapazes o fazem por volta do 17 anos e 3/4, podendo observar-se nos dois grupos um intervalo de variação relativamente elevado.

O Homem, aparentemente revela-se como um dos poucos vertebrados que mostra um intervalo temporal tão longo entre o nascimento e o início da puberdade, sendo esta faceta fisiológica razão de discussão teórica. Pensa-se que o motivo principal deste comportamento biológico, reside no facto do muito mais complexo cérebro humano necessitar de um período mais longo de maturação, ou por outras palavras, em virtude da sobrevivência humana depender da aprendizagem que se revela necessariamente como um processo longo, ao contrário do que se observa com o instinto.

Os programas de actividade física para os jovens, abarcam desde simples actividades físicas ao ar livre até desportos de alta competição. O prestigio adquirido pelo desporto a nível nacional e internacional, determinou num número restrito mas mesmo assim muito elevado de jovens, um aumento significativo da intensidade do treino. Os efeitos determinados por essas cargas sobre a dinâmica do crescimento esquelético são questões que se nos colocam e que merecem estudos aprofundados.

Os esforços mecânicos exercidos dentro de parâmetros fisiológicos, tal como se verifica durante a actividade física normal de uma criança, além de acelerar o crescimento físário, são necessários para o desenvolvimento contínuo e ordenado das suas cartilagens de crescimento.

A procura de respostas para a resolução do problema é extremamente difícil, devido à complexa interacção de inúmeras variáveis representadas pelo tipo de actividade desportiva, natureza e frequência das provas, idade do inicio da prática desportiva, desenvolvimento do estado geral da criança e intensidade e duração do treino.

Do ponto de vista fisiológico, existe a preocupação de tentar avaliar a relação entre os *stresses* gerados pela actividade física, e as respostas fisiológicos e patológicas gerados fundamentalmente a nível cardiovascular e nas últimas décadas sobre o sistema esquelético.

Sabe-se que na ausência de lesão, os esforços mecânicos de enorme grandeza impostos pelas cargas de treino actuais, não mostram qualquer efeito deletério sobre a dinâmica do crescimento. Obviamente terão de haver respostas esqueléticas face à hiperfunção e se o gesto corporal for assimétrico do ponto de vista da *lateralidade* ou por factores biomecânicos, as adaptações necessariamente se comportarão como assimétricas. Como em todas as facetas da vida existirão limites que determinarão a passagem do fisiológico ao patológico. No binómio esforços mecânicos/crescimento esquelético, essa fronteira ainda não foi encontrada e provavelmente nunca a encontraremos.

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Capítulo II
Contextualização, Objectivos e Hipóteses da Pesquisa

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Conclusão do Estudo

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