

BÖLÜM 6

MİYOKİNLER VE METABOLİZMA ÜZERİNE ETKİLERİ

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GİRİŞ

Egzersiz kardiyovasküler metabolik, nöronal ve psikiyatrik birçok hastalıktan koruduğu için çoklu ilaç kullanımına benzetilmektedir(1). Egzersiz iskelet kaslarının zindeliğini artırarak, sağlık durumunu ve yaşam kalitesini iyileştirmektedir(2). Egzersizin ana hedefi sempatoadrenal ve kardiyovasküler sistemi entegre edip gereken metabolik yakıtı teminin ederek, enerji tüketimini 1000 katına kadar artırabilmektir(3).

İskelet kasları diğer organlarla arada kavşak görevi görerek aktif kasın enerji gereksinimini diğer sistemlerle bağlantılı hale getiren bir 'egzersiz faktörü' gibi davranmaktadır(4). Kas hücrelerinden salınan bu egzersiz faktörlerinin önemli metabolik etkilere sahip birer sitokin olduğunun ortaya atılması farklı araştırma konularına yol açmıştır. İnsan vücudundaki en büyük organ sayılan iskelet kasının kasılarak sitokin üretmesinin keşfedilmesi, iskelet kasının metabolizma ve organ sistemlerini etkileyen hormon benzeri maddeler salan endokrin bir organ olduğu kavramını doğurmuştur(5). Egzersiz diyabet ve ateroskleroz gibi hastalıkların yol açtığı inflamasyondan bağımsız olarak benzer sitokin ve proteinlerle antiinflamatuvar süreçleri başlatmakta(6,7) ve iskelet kaslarından salınımına özgü olarak 'miyokin' adı ile anılmaktadır. Miyokinler otokrin, parakrin ve endokrin etkilerle 'kaslar diğer organları nasıl etkiler?' sorusuna kavramsal bir temel oluşturmuştur(8).

Fiziksel egzersiz esnasındaki artmış oksijen tüketimi, sinyal moleküllü özelliği taşıyan serbest radikallerde ve reaktif oksijen ürünlerinde artış meydana getirmektedir(9). Egzersizin indüklediği oksidatif stres, hücrel defans mekanizmalarını harekete geçirerek yaşlanma sürecinde stres ile ilişkili hastalıklarda gecikme ve sıklığında azalma meydana getirmektedir (10).

Egzersiz sadece reaktif oksijen ürünlerinin üretimine sebep olmakla kalmaz, akut olarak katlanmamış protein cevabına sebep olarak bir diğer hücrel ve metabolik adaptasyon mekanizması olan endoplazmik retikulum stresini de hare-

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