Editorials

Growing trends in the pursuit of muscularity:

what healthcare professionals should be aware of

The psychological and physical repercussions of body image concerns in women will be familiar to many healthcare professionals. There is, however, massing evidence that body image dissatisfaction in men is increasing, with more and more adolescent boys reporting feeling unhappy with their physique.[1,2] Lack of muscular development is the commonest concern and greater numbers of men are turning to body-building practices in an attempt to achieve their body ideal. Rates of gym membership in the UK continue to increase, perhaps reflecting this preoccupation, with 8 million people belonging to gyms or leisure centres in 2014.[3]

Although gym-going and body-building in general have significant health benefits, there is a proportion of individuals who engage in the pursuit of muscularity to a degree that may compromise their wellbeing. This may take the form of significant impacts on physical health but may also manifest as psychological distress or ill health. Physical health risks are often mediated by the adoption of harmful associated practices. These include pharmacological abuse and restrictive and unhealthy dieting. Even the use of nutritional supplements may have risks. Individuals partake in these activities to varying extents, but many will have specific healthcare needs that should be recognised by health professionals.

PHARMACOLOGICAL MISUSE

Aside from the risk of injury through excessive training, the most significant physical health risks to those seeking a muscular ideal come through pharmacological abuse. Numerous drugs are used, with anabolic-androgenic steroids (AAS), such as nandrolone and stanozolol, being by far the most popular. Use of these performance-enhancing drugs often takes place without accurate knowledge of their potential harmful effects, thereby compounding the risks.

Reliable estimates of AAS use in the general public are difficult to acquire. A UK Home Office survey in 2012–2013 reported 271 000 people having used AAS 'ever' in their lifetime and 59 000 in the past year, while an estimated 17 000 people aged 16–24 years reported using AAS.[4] UK-based research studies have given wide-ranging prevalence rates for AAS use in gym populations, varying from 19.5% to 53%.[5,6] Globally, the prevalence of AAS use has been estimated at 6.4% of males.[7]

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The information available on the adverse health effects of AAS is scarce and often anecdotal. Many studies are limited by the use of therapeutic doses. In reality, users take far higher doses (up to 1000 times greater than that clinically recommended), at the same time 'stacking' several steroids at once and combining them with other drugs. Adverse effects of AAS are seen at all doses, including therapeutic, and these side effects tend to be type and dose related. They include: testicular atrophy, acne, gynaecomastia, and hypertension. There is also evidence for increased cardiovascular death with AAS, while their use has been shown to lead to heightened aggression and mood changes.

One study demonstrated that, although 77% of AAS users experience two or more side effects, only 48% of them were worried about their long-term effects.[8] This continued desire to use is important for healthcare professionals to recognise, and is perhaps reinforced by the clear benefits that users see in changes to their body shape. AAS users often do not undergo medical checks despite adverse effects,[5] although evidence shows that they desire more health advice from GPs and substance misuse workers.[9] This advice, however, may merely be sought in order to reassure them that it is safe to continue using AAS.

An additional risk associated with AAS use is that of blood-borne virus (BBV) transmission via needle sharing, with surveys across the UK indicating increasing numbers of AAS users visiting syringe exchanges.[10] It is unclear, however, whether there is a causal link at play here as AAS users may also be at risk of BBV transmission due to additional risk behaviours, such as recreational drug use.

Along with AAS, those pursuing a muscular ideal may use a number of other drugs to achieve their goals. The mean number of drugs taken at any one time is 3.2 (± 2.1) for men and 2.2 (± 1.2) for women.[8] Of these adjuncts, the most popular appear to be: ephedrine, clenbuterol, and human chorionic gonadotropin.[6] Other drugs used include: growth hormone (GH), GH-releasing hormone analogues, thyroxine, tamoxifen, insulin, and diuretics. Any one individual's drug arsenal will need full exploration in order for appropriate medical advice to be given. Even with this information, professionals may feel compromised in their ability to give nuanced advice to individuals who are unwilling to give up the use of non-prescribed medications.

NUTRITIONAL RISKS

Realistically, AAS and associated drug use may only occur in a small group of the general gym-going population. A more widespread health-related issue may be the use of over-the-counter nutritional supplements. These include: protein supplements, amino acids, creatine, and multivitamins. As with the wider field of nutrition, data on levels of use and possible associated adverse effects are lacking and what is available is not conducive to allow professionals to make specific recommendations to patients. However,

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there are established links between long-term use of high doses of protein and kidney damage and osteoporosis. There is also evidence that some products presented as nutritional supplements contain undeclared pharmacologically active agents, such as AAS, thereby putting users at unanticipated risks.[11]

Those seeking increased muscularity may also adopt specific harmful dieting practices in order to achieve gains in muscle mass and maintain a low percentage of body fat. Although there may be significant benefits to maintaining a healthy diet, restrictive and unbalanced diets may have specific health-related consequences that professionals need to be aware of. These include: a compromised immune system, a slowed metabolism, and psychological effects, including mood swings, depression, and cognitive impairment.[12]

MENTAL HEALTH CONCERNS

A significant proportion of individuals who pursue a muscular ideal may, either as a result of or as a precursor to this pursuit, suffer from psychiatric morbidity that requires support.

Adolescents, especially those already suffering from poor self-image, are at risk of developing pathological attitudes and behaviours related to body build. Such attitudes are exemplified by the proposed condition *muscle dysmorphia*, the sufferers of which pursue their body ideal in a manner that significantly compromises their physical and psychosocial functioning.[2,13] More generally, even those not displaying attitudes and behaviours to such a pathological extent are at risk of psychiatric illnesses related to poor self-esteem and body image dissatisfaction. These might include: major depressive disorder, anxiety disorders, body dysmorphic disorder, and eating disorders. Of note, the risk of depressive episodes increases dramatically in response to AAS users coming off AAS, a fact that clinicians should be aware of. Adequate screening for psychopathology should be undertaken at any and all presentations of individuals suspected of having poor self-image.

THE ROLE OF HEALTHCARE PROFESSIONALS

Given the increasing prevalence of gym attendance and the concomitant rise in health-risk behaviours that is likely to accompany this, it is necessary for health professionals to be aware of the possible medical repercussions that may lead to the presentation of men, and indeed women, involved in muscle-building practices in a variety of care settings.

Knowledge of the various behaviours undertaken and the specific effects that these, and body image dissatisfaction in general, may have on health can aid the practitioner in formulating a management strategy for these patients. This plan should tackle individuals' needs holistically, considering both physical and mental health.

Future training of healthcare professionals should aim to take into account specific issues related to the pursuit of muscularity while more support for both patients and practitioners should be established. A considerable amount of research is needed to quantify the true extent of the problem and to firmly establish the medical repercussions of the drugs and practices involved. Public health campaigns disseminating these risks to the general public are warranted.

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