

Role Of Exercise, Fitness And Nutrition In Prevention Of Male Sexual Dysfunction

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Abstract: Erectile dysfunction (ED) is one of the many results of degenerative lifestyles which includes lack of exercise, poor fitness and poor nutrition, which most often results from poor circulation. Exercise, fitness and proper nutrition can improve vascular health and reverse or control the factors that contribute to erectile dysfunction. Men who are fit and exercised vigorously for 20 to 30 minutes per day are said to be less likely to have erection problems as inactive men. The incidence of ED was said to be common among men aged 18 to 59 years, and higher among men with certain medical disorders such as diabetes mellitus, heart disease, hypertension, and decreased HDL levels. Exercise has also been shown to regulate blood sugar by increasing the amount of energy utilized and helps maintain healthy weight and body composition, in addition to increase in testosterone levels which enhances libido in male. Men who are physically inactive are more likely to develop prostate cancer, and fitness appeared to have an impact towards lowering the risk of developing prostate cancer. Maintaining a healthy weight, reducing stress and making healthy food and beverage choices, can have a positive effect on a man's ability to achieve and maintain an erection. Excess body fat is clearly related to several health problems, including cardiovascular diseases, diabetes mellitus (type II), and certain forms of cancers, all of which are detrimental to penile erectile functioning. Men who typically consume foods that promote inflammation and contain cancer-promoting substances; that is high in fat, lots of red meat, and one that is low in fiber, fruits and vegetables, have a higher risk of developing ED than men who do not eat these foods. Eating foods that contain folic acid, vitamin C, and vitamin E support the pathways that lead to the release of nitric oxide and promotion of erectile functioning. Alcohol abuse in men for instance had been found to cause a disruption in testosterone production and shrinkage of the testes

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Introduction

Sexual health and functioning are important determinants of quality of life especially in our society today, and disorders such as erectile dysfunction (ED) in male are becoming increasingly very important (Latini, Penson, Lubeck, Wallace, Henning and Lue, 2003). This is the era when youths are supposed to be strapping, strong, and healthy, yet increased trend of cases of erectile dysfunction among young men, and which use to be problems of older-man (Derby, Mohr, Goldstein, Feldman, Johannes and McKinlay, 2000). Erectile dysfunction can be so common in some cases among certain sedentary young men in their 30s and 40s to the extent that it is almost considered normal. Well, it may be "normal" in the present day certain context, but certainly not natural. Erectile dysfunction is one of the many results of degenerative lifestyles, such as poor fitness and poor nutrition, which most often results from poor circulation, and abnormal hormonal balance (Kloner, Mullin, Shook, Matthews, Mayeda and Burstein, 2003). Indeed, normal erectile function is easy to maintain if fitness is maintained and as such young people are urged to hold their horses before giving in to dangerous and toxic

pharmaceutical solutions (Qaseem, Snow, Denberg, Casey, Forciea and Owens, 2009).

Men and women of all ages are increasingly seeking guidance in an effort to improve their relationships and experience satisfying sexual lives (Latini, Penson, Lubeck et al, 2003). The term erectile dysfunction refers to a recurring and persistent condition where a man is unable to achieve or maintain an erection and complete sexual intercourse. In most cases, erectile dysfunction is a sign of a deeper, underlying problem and to many clinicians, it is considered to be one of the earliest signs of a cardiovascular disease (Thompson, Tangen, Goodman, Probstfield, Moinpour, and Coltman, 2005).

Unfortunately, some people have a gleaned simplistic understanding of the role of 3 phosphodiesterase-5 (PDE-5) inhibitors (ie, sildenafil such as Viagra, Levitra and tadalafil) and other chemotherapeutic managements of EDs. Most people are not willing to undergo a long evaluation, testing process and fitness regime to obtain a better understanding and effective manage of their sexual problem (Qaseem, Snow, Denberg et al, 2009). They usually wish to obtain medications where possible by

a phone call from their clinician or even over the Internet with minimal or no expert contact. The role of the expert in such situations is usually reduced to educating the people about realistic sexual expectations resulting from lack of exercises, improper fitness and nutrition, and help towards preventing the misuse, overuse and abuse of medications (Raina, Lakin, Agarwal, Sharma, Goyal and Montague, 2003).

Exercise, fitness and proper nutrition can improve vascular health and reverse or control the factors that contribute to erectile dysfunction. They also have direct effects on erectile functioning by improving the general health and circulation of all parts of the body, including the penis. According to the American Council on Exercise (ACE) in 2005, men who are fit and exercised vigorously for 20 to 30 minutes per day are less likely to have erection problems as inactive men. Additionally, ACE cites a University of California study where 78 sedentary men reported more reliable sexual functioning and more frequent sexual activity after exercising one hour per day, three to four times a week (Thompson, Tangen, Goodman et al, 2005).

Erectile dysfunction has the spread among those with almost any disease that may alters the nervous, vascular and hormonal systems (Rosen, Jackson and Kostis, 2006). It is usually caused or associated with vascular diseases and conditions such as diabetes hypertension, and coronary artery disease (De Berardis, Pellegrini, Franciosi, Belfiglio, Di Nardo, and Greenfield, 2003). Exercise, fitness and proper nutrition conditions the development and adaptation of the body and its various systems towards prevention of erectile dysfunction. Sexual beneficial changes in cardiovascular, hormonal, metabolic, neurological, and respiratory system results with increased exercise capacity, fitness and nutrition Proper diets are needed for functioning and avoidance of certain disease conditions which are detrimental to the human healthy well being including penile erections (). Men who are physically inactive, unfit and on inadequate diets are more likely to develop detrimental conditions which are adverse to erectile functions than their fitter peers (Kloner, Mullin, Shook et al, 2003).

Epidemiology of Erectile Dysfunction

The incidence of moderate or severe ED according to a finding by Derby, Mohr, Goldstein et al, 2000 more than doubled between the ages of 40 and 70. In the National Health and Social Life Survey of the United States (NHSLs), which was a nationally representative sample of men aged 18 to 59 years. Indicated that ten percent (10%) of men reported being unable to maintain an erection. Incidence was highest among men in the 50 to 59 age group (21%) and among men who were poor (14%), divorced (14%), and less educated (13%). The incidence of ED was

also higher among men with certain medical disorders such as diabetes mellitus, heart disease, hypertension, and decreased HDL levels (Benet and Melman, 1995). In the Massachusetts Male Aging Study (MMAS), a community-based survey of men between the ages of 40 and 70, 52% of responders reported some degree of ED (Braun, Wassmer, Klotz, Reifenrath, Mathers, and Engelmann, 2000). Complete ED occurred in 10% of respondents, moderate ED occurred in 25%, and minimal ED in 17% (Laumann, Paik, and Rosen, 1999). Smoking was said to be a significant risk factor in the development of ED. Medications used to treat diabetes or cardiovascular diseases were also implicated as additional risk factors for the development of the condition (Qaseem, Snow, Denberg et al, 2009).

It has been estimated that four out of five men with ED have BMIs (body mass indexes) greater than 25. According to the researchers, overweight men with BMIs of 28.7 (that's about 195 pounds for a 5'9" male) have a 30% greater risk for developing ED than normal-weight men. (Niederberger and Londale, 2002) In addition to the risk of sexual dysfunction, being overweight increases the risk for heart disease, high blood pressure, type 2 diabetes, and other chronic diseases. Furthermore, high blood pressure, diabetes, heavy alcohol consumption, and blood-pressure drugs all put a man at higher risk for ED (De Berardis, Pellegrini, Franciosi et al, 2003). "It is well-accepted that obesity is a co-factor towards the development of atherosclerotic disease that can impede blood flow to any part of the body (Qaseem, Snow, Denberg et al, 2009). According to Perlow. "Losing weight can improve blood flow and competent not only to the heart and other organs, but also includes the penis"(Toque, 2010).

A relationship between obesity, a high-fat diet, and erectile dysfunction was explored by international team of scientists in 2009, who used a mouse model to evaluate the impact of obesity induced by a high-fat diet on erectile function. They found that compared with mice fed on normal diet, those fed the high-fat diet had impairments related to the endothelium and cavernosal relaxation, which leads to erectile dysfunction. (Toque 2010) In another study (2010), researchers reported that among the 2,725 normal weight, 1,488 overweight, and 350 obese men in their study of sexuality and obesity, obese men were more likely than normal weight men to experience erectile dysfunction (Gupta, Murad and Clifton, 2011).

Aetiology of Erectile Dysfunction

Erectile dysfunction is usually of multifactorial origin, ranging from organic, physiologic, endocrine, and psychogenic factors (Ernst and Pittler, 1998). Broadly speaking, the causes of ED can be divided into organic and psychogenic origins. However, many

men with organic aetiologies (such as diabetes, prostate enlargements, and physical trauma of the penis and so on) may also have an associated psychogenic component such as depression, lack of libido, and fear of performance failure (Goldstein, 2000). ED is often associated with other vascular diseases and conditions such as diabetes hypertension, and coronary artery disease (De Berardis, Pellegrini, Franciosi et al, 2003). Infective diseases conditions such as gonorrhoea and herpes which produce changes in the smooth muscle tissue of the corpora cavernosa of the penis also effects ED (Goldstein, 2000).

Conditions associated with reduced nerve and endothelium function, such as aging, hypertension, smoking, hypercholesterolemia, and diabetes, alter the balance between contraction and relaxation factors (Gerald, Fletcher, Chair, Gary, Steven, Blair, James, Carl, Caspersen, Bernard, Stephen, Epstein, Sivarajan, Victor, Froelicher, Ileana, Pina and Pollock, 1999). These conditions cause circulatory and structural changes in penile tissues, resulting in arterial insufficiency and defective smooth muscle relaxation all over the body. (Thompson, Tangen, Goodman et al, 2005).

Exercise and Fitness Relationship to Erectile Dysfunction

Exercise is a component of physical activity and is a structured activity specifically planned to develop and maintain physical fitness. Physical fitness is a conditioning referring to the development of the adaptation of the body and its various systems to daily physical strains imposed upon it. Physical characteristics that constitute health-related physical fitness include strength and endurance of skeletal muscles, joint flexibility, body composition, and cardiorespiratory endurance. All these attributes changes in response to appropriate physical conditioning, which and are all related to health (Gerald 1996).

Penile tumescence leading to erection depends on the increased flow of blood into the lacunar network after complete relaxation of the arteries and corporal smooth muscle. The microarchitecture of the corpora cavernosa composed of a mass of smooth muscle (trabecula) which contains a network of endothelial-lined vessels (lacunar spaces). Subsequent compression of the trabecular smooth muscle against the fibroelastic tunica albuginea causes a passive closure of the emissary veins and accumulation of blood in the corpora (Aderss and Wagner, 1995).

Normal male sexual function requires (1) an intact libido; (2) the ability to achieve and maintain penile erection; (3) ejaculation; and (4) detumescence (Aversa, Isidori, De Martino, Caprio, Fabbrini and Rocchietti 2000). *Libido* refers to sexual desire and is

influenced by a variety of visual, olfactory, tactile, auditory, imaginative, and hormonal stimuli, particularly testosterone. Libido can also be influenced by hormonal, psychiatric disorders, medications and fitness level of the individual (Althof and Seftel, 1995). Normal health, proper nutrition and fitness are essential for interest in sexual functions by an individual (Aversa, Isidori, De Martino et al, 2000).

Aerobic exercise strengthens the cardiovascular system by making the heart stronger and the lungs more efficient. A stronger heart delivers more blood to the body with fewer beats, which also lowers blood pressure. Efficient lungs can transfer more oxygen into the blood stream with each breath (Kloner, Mullin, Shook et al, 2003). Regular exercise enhances venous return and increases the metabolism so that we burn more calories at rest, which is essential for libido (Aversa, Isidori, De Martino et al, 2000). Exercise has also been shown to regulates blood sugar by increasing the amount of energy we use and helps us maintain healthy weight and body composition. Additionally, exercises can, also causes increase in testosterone levels which enhances libido in male (Gerald, Fletcher, Chair et al, 1999).

Some physical limitations are perhaps only indirectly related to health, but individuals who cannot pick up and hug a child or must struggle to get up from a soft chair surely have a lower quality of life than that enjoyed by their fitter peers, and cannot be expected to enjoy proper erectile performance (Adamopoulos, Coats, Brunotte et al, 1993). Exercise, or the lack of physical activity, can impact erectile function in several ways. Daily moderate exercise for instance can stimulates the production of nitric oxide, which is necessary for erection (Jackson, 2010). Maintenance of normal body weight can also promotes nitric oxide stimulation by insulin. The cardiovascular system is intimately involved in the development of erectile dysfunction, as such erectile dysfunction can be an early warnings sign of circulatory and heart diseases (Solomon, Man, Martin et al, 2003). Engaging in regular aerobic exercise, such as walking, biking, and other cardiovascular fitness activities, reduces the risk of heart disease and enhance blood circulation (Gupta, Murad, Clifton et al, 2011).

In a large study conducted at Harvard University, researchers evaluated the lifestyle habits of 31,742 men ages 53 to 90 years, none of whom had prostate cancer. The researchers discovered that 33 percent of men reported erectile dysfunction within the previous three months, but men who exercised 3 to 5 hours a week had 30 percent less risk of having erectile dysfunction. Given that the risk for erectile dysfunction goes up 5 percent a year after age 50, this study showed that men who exercise regularly can gain 10 more years free of erectile dysfunctions

(Kawanishi, Lee, Kimura, Koizumi, Nakatsuji and Kojima, 2001).

Exercise can also impact a man's erectile function through its effect on prostate health. Men who are physically inactive are more likely to develop prostate cancer. In one such study published in November 2001 reported that men who regularly engaged in moderate exercise appeared to have a lower risk of developing prostate cancer (Bortolotti, Parazzini and Colli, 2007). Men with prostate cancer generally experience erectile dysfunction as a result of treatment for the condition, as such anything that can lower the risk of prostate cancer will, by association, impact on erectile function (Larson, 2003).

Exercise training favorably alters lipid and carbohydrate metabolism. Exercise induced increase in high-density lipoproteins which are strongly associated with changes in body weight; and greater increase in high-density lipoproteins had been found in men who exercise at higher levels of recreational activities such as running (Qaseem, Snow, Denberg et al, 2009). Regular exercise in overweight men enhances the beneficial effect of a low-saturated fat and low-cholesterol diet on blood lipoprotein levels. Endurance training has effects on adipose tissue distribution, and the effect on adipose tissue distribution is likely to be important in reducing cardiovascular risk (DeBusk, Drory and Goldstein, 2000). Exercise training also has an important effect on insulin sensitivity, and intense endurance training has a highly significant effect on fibrinogen levels of healthy older men (King, Haskell, Young, Oka and Stefanick, 1995). Developing and maintaining aerobic endurance, joint flexibility, and muscle strength is important for a comprehensive exercise program geared towards erectile functioning and intact libido, especially as people age (Qaseem, Snow, Denberg et al, 2009).

Diet and Erectile Dysfunction

Many men are usually surprised to learn that their and nutritional habits can have a significant impact on erectile dysfunction. Habits such as smoking, the use of alcohol, and lack of physical exercises can have a negative impact on ability and maintenance of erection. However, maintaining a healthy weight, reducing stress and making healthy food and beverage choices, can have a positive effect on a man's ability to achieve and maintain an erection (Derby, Mohr, Goldstein et al, 2000). When considered together, choosing good healthy dietary habits can help in the achievement and maintenance of good erectile function. In fact, a study from the University of California, Los Angeles, reported that a multifaceted approach is necessary to maintain and maximize erectile health (Niederberger and Lonsdale, 2002).

The study of human nutrition/diet involves the effects of food on health and survival of the human body. Proper diets are needed for adequate functioning of the human body, and avoidance of certain disease conditions which are detrimental to its healthy well being (Derby, Mohr, Goldstein et al, 2000). The human body naturally stores fat tissue under the skin and around organs and joints (Solomon, Man, Martin, Jackson, and Goldstein, 2003). Fat is critical for good health because it is a source of energy when the body lacks the energy necessary to sustain life processes, and it provides insulation and protection for internal organs. But the accumulation of too much fat in the body is associated with a variety of health problems among which are erectile dysfunctions (Jackson, 2010).

Excess body fat is clearly related to several health problems, including cardiovascular diseases, diabetes mellitus (type II), and certain forms of cancers, all of which are detrimental to the penile erectile functioning (De Berardis, Pellegrini, Franciosi et al, 2003). Body composition is affected by diet, but exercise habits play a crucial role in preventing obesity and maintaining acceptable levels of body fat (Qaseem, Snow, Denberg et al, 2009).

Obesity is a medical condition characterized by storage of excess body fat. Research had indicated that there is a relationship between obesity and erectile dysfunction. According to a study published in the Journal of Sexual Medicine in 2008, obesity correlates with a decline in testosterone level. Among the 2,435 participants in the study, all of whom had sought help for sexual dysfunction, 41.5 percent were normal weight and 58.5 percent were overweight or obese (Qaseem, Snow, Denberg et al, 2009). The investigators found that the more severe the obesity, the lower the testosterone level and testosterone level determines erectile functions. Obese men were also more likely to have abnormal penile blood flow which also affects erectile functions (Gupta, Murad, Clifton et al, 2011).

Men who typically consume foods that promote inflammation and contain cancer-promoting substances; that is high in fat, lots of red meat, and one that is low in fiber, fruits and vegetables, have a higher risk of developing erectile dysfunction than men who do not eat these foods (Derby, Mohr, Goldstein et al, 2000). On the positive side, a diet that is rich in antioxidants, which can be found in fruits and vegetables, whole grains, legumes, and nuts, boosts production of nitric oxide and prevents its breakdown. In particular, eating foods that contain folic acid, vitamin C, and vitamin E support the pathways that lead to the release of nitric oxide and promotion of erectile function (Bajos, Steven, Blair, Carl, Bernard, Stephen, Erika and Sivarajan, 2010) Eating foods and

taking supplements that contain omega-3 fatty acids is also important, as the omega-3s stimulate the release of nitric oxide from the endothelium. Reducing the intake of sugar, fat, and simple carbohydrates also reduces the side effects that sugar and fatty acids have on endothelial nitric oxide production, which is critical for erectile function (Gupta, Murad, Clifton et al, 2011).

Most men who enjoy one or two drinks a day are not likely to experience any harm to their sexual health. In fact, such moderate drinking may reduce the risk of coronary heart disease and stroke. Greater intake of alcohol, however, can lead to a variety of health problems, and among them may be erectile dysfunction (Aversa, Isidori, De Martino et al, 2000). Conversely, avoidance of excessive alcohol can preserve normal endothelial function, and moderate alcohol use may have a favorable impact on blood flow and vascular health as well as erectile function (Althof and, Seftel, 1995).

Among studies of erectile dysfunction and alcohol usage, investigators had found that alcohol abuse in men can cause a disruption in testosterone production and shrinkage of the testes (Gupta, Murad, Clifton et al, 2011). When the body breaks down alcohol, it may also disrupt normal sperm structure and mobility (Aversa, Isidori, De Martino et al, 2000).

Conclusion

Exercise, fitness and adequate nutrition prevent circulatory hormonal and neurological defects especially among healthy older men and among people with cardiac disease or major depressions, which impact significantly on erectile functions (Gerald, Fletcher, Chair et al, 1999). Exercise, fitness and adequate nutrition also improves self-confidence and self-esteem, attenuates cardiovascular and neurohumoral responses to mental stress which are vital in the prevention of male sexual dysfunction (Solomon, Man and Martin et al, 2003).

Despite the positive physical and mental health benefits of exercise, fitness and proper nutrition, long-term adherence to these programs remains problematic. It has been estimated that only 50% of all people who initiate these programs continues the habit for more than 6 months (DeBusk, Drory and Goldstein 2000) The issue of nonadherence is particularly important because exercises and proper nutrition for prevention/ maintenance in cases of erectile dysfunction, are only beneficial if they are maintained as habits for extended periods of time (King, Haskell, Young, Oka and Stefanick, 1995). It is therefore important for the development of strategies for exercises, improvements of fitness and healthy nutrition, especially for people who are among the

least active and nutritionally reckless (DeBusk, Drory and Goldstein 2000).

Recommendations for Prevention of Male Erectile Dysfunction.

Daily Exercises. For those whose daily routine is sedentary and their daily activities do not involve much utilization of muscles, daily work out is essential. Walking, swimming, aerobics or any exercise which they enjoy, as long as it is physical and makes them sweat, so as to increase blood flow to all parts of the body. Exercising 30 minutes a day at least five days a week is sufficient for overall healthy erections (Gerald, Fletcher, Chair et al, 1999).

Exercises such as Kegel exercises can strengthen the pelvic floor muscles. These exercises can be done anywhere—while sitting in your office, driving your car, standing in a line at a bank—because they involve voluntarily squeezing or contracting certain muscles of the perineal region and then releasing them. Performing this exercise several times a day for just a few minutes may make a significant impact on maintenance of erectile functions (King, Haskell, Young et al, 1995).

Indulgence in safe sex; on a regular basis is necessary to keep the juices flowing and exercising the penis (Kloner, Mullin, Shook et al, 2003).

Nutrition: For those who are not on a weight reduction diet, they must eat well and have a diet that contains adequate amounts of proteins, carbohydrates, fats, vitamins, minerals, electrolytes. Special attention should be given to the intake of the following:

Zinc: This is because zinc helps in raising testosterone levels. Zinc is found in most foods that are rich in proteins.

Vegetarian sources of zinc includes Milk, Yogurt and Cheese, Whole grain cereals, Brown rice, Potato, Beans and Peanuts. Pumpkin seeds are very rich in zinc.

Non Vegetarian sources includes Beef, Lamb, Pork, Chicken, Turkey, Salmon and Shellfish (Derby, Mohr, Goldstein et al, 2000).

Vitamin C increases flow of blood to the various parts of the body, including the penis (Bajos, Steven, Blair et al, 2010).

Fruits source for vitamin C includes oranges, Lemons, Lime, Strawberries, Guava, Leeches, Mangoes, Peaches.

Vegetables source for vitamin C includes Broccoli, Gourd, Green Cabbage, Cauliflower, Tomato, Peppers, Potatoes (Bajos, Steven, Blair et al, 2010).

Arginine, an amino acid produced by the body, helps in the production of nitric acid which keeps the blood vessels relaxed, thus contributing to extra flow of blood.

Food Sources which helps in the processes of precursor of Arginine: Nuts and seeds, Meats, Fish, Shell fish, Chicken, Eggs, Turkey, Milk and milk products (Victor, 2003).

Obesity; People who are obese are to be motivated to lose weight (Niederberger and Londale, 2002).

Abstinence from alcohol utilization or abuse by men so as not to cause a slow disruption of testosterone production and shrinkage of the testes (Gupta, Murad, Clifton et al, 2011).

Diabetes and cholesterol; Regular blood check up on a half yearly basis for those above 40 years of age and above is essential. It is even more important particularly for those with a family history of diabetes (De Berardis, Pellegrini, Franciosi, Belfiglio, Di Nardo, and Greenfield, 2003).

Sleep well; learning to sleep well at the right time enough to give the satisfaction of relief from physical activities is essential for adequate functioning of the body, including circulation and penile erections (Adamopoulos, Coats, Brunotte, Arnolda, Meyer, Thompson, Dunn, Stratton, Kemp and Radda, 1993).

Drinking of plenty of water; spaced out during the day has a lots of magical benefits upon circulation, including erectile functions (Aversa, Isidori, De Martino et al, 2000).

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