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Erectile Dysfunction (ED), Part I : Its Varieties, Prevalence, Causes, And Relationship Implications

By Michael Castleman

The bad news: Erection difficulties are fairly common among men of all ages—especially men over 40, and risk increases with age. The good news: In many cases, men with faltering or lost erections can restore them (with or without drugs), and if that's not possible, there are many satisfying, orgasmic ways to make love *without* an erection.

The Varieties of ED

- Erection dissatisfaction
- Erectile dysfunction (true ED)

Prevalence of ED

• The true prevalence is unknown, but reasonable estimates suggest it's a common problem.

The Many Causes of ED

- High blood pressure
- High cholesterol
- Smoking
- Diabetes
- Obesity
- High-fat diet
- Cardiovascular disease
- Aging
- Sexual misinformation
- Stress (relationship problems, job, family, financial issues)
- Acute illness
- Neurological disorders
- Depression
- Antidepressants

- Alcohol
- Other drugs
- Hormone imbalances
- Prostate cancer treatment

Talking to a Lover About ED

- Discuss it. Don't retreat into silence.
- Men tend to view ED as a mechanical problem, something to "fix."
- Women tend to view ED as a relationship issue, something to work on together.
- The male and female views are often both right.

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Erectile Dysfunction (ED), Part I: Its Varieties, Prevalence, Causes, And Relationship Implications

The bad news: Erection difficulties are fairly common among men of all ages—especially men over 40, and risk increases with age. The good news: In many cases, men with faltering or lost erections can restore them (with or without drugs), and if that's not possible, there are many satisfying, orgasmic ways to make love *without* an erection.

Until the 1998 introduction of Viagra, the term usually used to describe erection problems was "impotence," literally "powerlessness." This term reflected the common view that men who couldn't raise erections were sexual failures. This implication made many men reluctant to discuss their erection difficulties. As a result, pre-Viagra sex surveys suggested that erection problems were not particularly common, typically affecting men over age 60, and younger men with chronic medical conditions, notably: diabetes, heart disease, depression, and spinal cord injuries.

The Varieties of ED

Today, the picture looks very different. In the decade since Viagra was approved (with Cialis and Levitra approved in 2003), men have become much more willing to discuss what is now called "erectile dysfunction" (ED), and a great deal of research shows that erection difficulties—from mild and occasional to persistent and severe—affect about half of men over 40, and some younger men as well.

While severe, persistent ED—not being able to raise an erection by masturbation is generally limited to men over 60 and younger men with erection-impairing medical conditions (notably diabetes and heart disease), mild, occasional erection balkiness—now often called "erection dissatisfaction"—is quite common among men over 40 and even younger men may suffer from it. Based on what they see over and over again in pornography, many men believe they are rock-hard erections spring out instantly at the drop of a zipper. However, porn isn't real life. For men over 40, and many younger men as well, instant, firm erections are the exception, not the rule. Today, the term ED is used to describe a broad range of erection issues, from occasional mild balkiness to severe ED.

Men with erection dissatisfaction don't have true ED. They can still raise erections sufficient for intercourse. However, their erections are neither as firm nor as reliable as they used to be, and as men would like. Erection dissatisfaction includes:

- Inability to raise an erection from fantasy alone. The man's penis must be stroked to raise one.
- Erections that are less firm and reliable than they were during men's teens and twenties.
- Erections can no longer be taken for granted. Men who walked about with rockets in their pockets as teens suddenly find themselves worried about getting it up.
- Meanwhile, severe ED involves:
- Chronic inability to raise or maintain an erection by masturbation despite vigorous penile stroking.

Prevalence of ED

How common is ED? No one really knows. The research is spotty, and there are real questions about how forthright men are when discussing erection difficulties.

Some of the best information comes from the Massachusetts Male Aging Study, an ongoing survey of 1,709 men over 40. More than half the participants (52 percent) report at least some erection difficulty:

At 40: Mild Occasional Erection Dissatisfaction: 18% Moderate, Frequent ED: 17% Severe, Constant ED: 5% Total: 40%

At 50: Mild Occasional Erection Dissatisfaction: 18% Moderate, Frequent ED: 19% Severe, Constant ED: 8% Total: 45%

At 60: Mild Occasional Erection Dissatisfaction: 18% Moderate, Frequent ED: 27% Severe, Constant ED: 11% Total: 56%

At 70: Mild Occasional Erection Dissatisfaction: 18% Moderate, Frequent ED: 32% Severe, Constant ED: 15% Total: 65%

Note: This study surveyed no one under age 40. But with almost 20 percent of 40 year olds reporting erection dissatisfaction, it seems highly unlikely that the problem suddenly pops up on men's 40th birthdays. Clearly a significant proportion of men under 40 must also share this problem.

A 1999 survey by University of Chicago researchers also addressed the prevalence of ED in based on a survey of 1,410 men age 18 to 59. The men were asked: Have you experienced any erection problems during the previous year? The results:

Age 18-29 7% 30-39 9% 40-49 11% 50-59 18%

Again, it's clear that while ED increases with age, many younger men also report some problems.

It's also quite possible that men remain reluctant to admit this problem. True rates of erection dissatisfaction and ED are probably higher.

Causes of ED

The erection medications have shone a spotlight on the causes of ED related to the cardiovascular system, that is, the heart (cardio) and blood vessels (vascular). Viagra, Cialis, and Levitra open (dilate) the arteries that carry blood into the penis. Dilated arteries carry more blood, hence improved erections. Conversely, anything that constricts the arteries reduce blood flow into the penis and contribute to erection dissatisfaction and ED. The risk factors for cardiovascular disease (heart disease and stroke) constrict the arteries, as a result, these same risk factors also increase risk of erection problems:

- High Blood Pressure. Chronically high blood pressure damages the delicate lining of the arteries, causing injuries that lead to the development of fatty, cholesterol-rich deposits (plaques) that narrow the arteries. When plaques form in the coronary arteries that nourish the heart, several conditions become more likely: angina, heart attack, and congestive heart failure. When plaques narrow the arteries in the brain, stroke and Alzheimer's disease become more likely. And when plaques narrow the blood vessels in the penis, ED becomes more likely.
- High Cholesterol. High cholesterol contributes to the plaque deposits on inner artery walls that narrow them and limit blood flow around the body, including into the penis.
- Smoking. Smoking accelerates arterial narrowing, limiting blood flow into the penis.
- Diabetes. Diabetes accelerates arterial damage. Diabetes approximately quadruples risk of heart disease. It also substantially increases risk of ED. In addition, diabetes can damage the nerves involved in erection.

- Obesity. Obesity means you're more than 20 percent heavier than your recommended weight. Obesity is strongly associated with high blood pressure, high cholesterol, diabetes, and a high-fat diet.
- High-Fat Diet. A diet based on fatty meats, cheeses, fast food, and junk food is associated with high cholesterol, high blood pressure and obesity.
- Cardiovascular disease. If a man has a history of heart disease or stroke, he's at high risk for ED. In fact, these days, when men complain of ED, doctors typically work then up for cardiovascular disease because sometimes erection difficulties are the first symptom of heart disease.

While cardiovascular disease is a major cause of ED, it's not the only one. Here's the proof: Several studies of couples in treatment for ED agree that outcomes are best when erection drugs are combined with sex therapy focused on issues in the relationship and on how the couple makes love. In other words, there's more to resolving ED and restoring couple's sexual satisfaction than just coaxing more blood into the man's penis.

- Aging. Even if a man maintains normal weight, cholesterol, and blood pressure, doesn't smoke, and doesn't have diabetes or cardiovascular disease, at some point, usually in his 50s, he notices erection dissatisfaction. The reason is that with age, the nervous system becomes less excitable. The reflexes slow somewhat. Similarly, men's ability to become sexually aroused also slows. By age 50 or so, most men can no longer raise an erection from just thinking sexual thoughts. Their penises require direct stimulation, perhaps a considerable amount. This is normal.
- Sexual Misinformation. In many young men and some older men, a key cause of erection problems is stress caused by belief in erection myths. Here are the most common myths, and the truth about them:

The majority of ED is caused by a combination of cardiovascular risk factors, aging, and sexual misinformation, emotional stress, acute illness, depression, drugs and drug side effects, neurological disorders, and hormone imbalances.

Myth: Erection is something men "achieve."

The American Urological Association (AUA) defines erectile dysfunction (ED) as "inability for at least 3 months to achieve or maintain erection sufficient for

satisfactory sexual performance." Note the word "achieve." The implication is that erection is something a man must work to produce, as though he were running a race or erecting a building.

But how exactly does a man "achieve" an erection? Most men take theirs for granted until sometime after 40 (and usually by 50), when erections begin to change. The site of an alluring woman no longer necessitates re-arranging the underwear. Erections no longer rise without some (or a good deal of) fondling, by hand, mouth, or sex toy. Post-40 erection balkiness is often unnerving—ore worse. Something men have always taken for granted can't be anymore. All of a sudden, erection requires effort, work, *achieving*.

The problem with "achieving" erections is that the best way to raise one after 40 is to do the *opposite* of achieving. The key to erections after 40—at any age, really—is *relaxation*, the kind that involves deep breathing and whole body-massage. Deep breathing and sensual touch open (dilate) blood vessels around the entire body, including those that carry blood into the penis. As the penile arteries dilate, more blood flows into the organ, and an erection rises.

The struggle to "achieve" erection is actually counterproductive. It generates considerably stress, and stress constricts blood vessels around the body, including those in the penis. Stress limits blood flow into the organ, and contributes to normal middle-age erection balkiness and to ED.

Forget about "achieving" erections. You can't will or force them. Erection is the result of deep sensual relaxation. The more sensual a couple's loveplay, the more likely the man is to be able to rise to the occasion, though after 50 this may take a while. Sex therapists describe the situation this way: What young men want to do all night takes older men all night to do.

In addition, leisurely, playful, whole-body, massage-inspired sensuality is critical to women's sexual arousal—and arousal is contagious. The more turned on the woman becomes, the more turned on—and erect—the man is likely to become.

Myth: Sex is a performance.

The AUA definition of ED mentions "satisfactory sexual performance." Like the word "achieve," the term "performance" has pernicious implications. It makes men feel they're being judged, that women are rating them as lovers and telling everyone they know.

When men think of sex as a performance they're likely to do what sex therapists call "spectatoring." Instead of feeling relaxed and fully engaged, sex assumes aspects of an out-of-body experience. Part of the man is making love, while the rest of him is somewhere else, watching him do it, a spectator at a performance.

Most people are extremely self-critical. Spectatoring invites self-criticism—and the stress and distractions that accompany it. Stop spectatoring. Sex is not a performance to be watched and judged. Great sex is a form of adult *play*. It's best when the two lovers feel deeply relaxed, when the focus is entirely on giving and receiving pleasure. There's no performance, no audience cheering or booing, no reviews. It's just the two of you enjoying each other's intimate company.

Myth: Men are sex machines, always ready, always hard.

An old joke asks: What single word can a woman say to sexually arouse a man? Answer: Hello.

The assumption is that men are so easily aroused that any female attention produces a bulge in their pants. That may be true at age 23. But after 40, things usually change. Men over 40 still think about sex frequently, but erections become balky, arousal is no longer automatic, and like women, men develop a set of conditions that must be met before they can raise erections, feel turned on, and enjoy sex.

The conditions necessary for erection vary from man to man, but typically include: privacy, deep relaxation, a feeling of emotional closeness with the woman, a romantic setting, no interruptions or distractions, and specific types of sexual stimulation. (Now, an estimated 1-3 percent of people get turned on by risky sex, for example, sex in public. But 97 to 99 percent of lovers prefer—and require—privacy, comfort, and safety.)

It's perfectly normal to have conditions for sex. In fact, it's unusual not to. Many men love to attend professional football games. But if the game is outdoors and it's 10 below zero, and snowing with gale-force winds, a man might decide not to go. Sex is similar. Men can love sex, but still need certain conditions to enjoy it. If those conditions are not met, a man's penis might not be interested. Especially a man over 40.

Myth: You get only one chance at erection per sexual encounter. If it wilts, sex is over, and you're a failure.

Some 22 year olds can stay rock-hard from the drop of a zipper through orgasm. But as the years pass, even men who once had perpetually firm erections during sex begin to experience some waxing and waning. For many (most?) men over 40, sex involves erections that go from firm to less firm—or even flaccid—and then back to firm, possibly several times. As men age from 40 to 50 and beyond, they need more and more direct penis fondling to raise and maintain erections. This is normal and natural, and no cause for alarm. But it marks a sexual change. After 40, a man may have to ask for more direct penis fondling, and the specific kind(s) of stimulation he enjoys.

Unfortunately, when men who believe the "only once chance" myth experience any erection subsidence, they become anxious—or worse. This is self-defeating. Anxiety deflates erection. If an erection subsides during sex, don't tense up and think: It's all over. Instead, breathe deeply, relax, ask your lover to caress your penis in a way you enjoy, and focus on an erotic fantasy. Chances are, your erection will return.

Many women also believe the myth that erections "should" remain hard throughout lovemaking. If an erection subsides, *they* may feel less desirable, or think *they* are sexual failures. Reassure them that after 40, it's perfectly normal for erections to wax and wane. When they subside, both lovers should understand that the man needs more direct caressing.

Myth: I blew it last time. I'll never get it up again.

This myth is similar to the previous one—and equally false. Of course, it's disconcerting not to become erect during sex. But it's a big mistake to overgeneralize a single experience to a subsequent lifetime of ED. If a man misses a shot in basketball, does it mean he'll never make another? If he loses a hand of poker, does it mean he'll never win again? If a relationship ends, are you fated to remain single forever? Sometimes things work, sometimes they don't. But in most aspects of life, men know that another day means another chance to succeed. Unfortunately, many men believe their penises don't give them second chances. Relax: They do.

If a man finds that he's having erection difficulties, he should take a careful look at the situation. Here are some possible reasons why things might not work: Fatigue, sleepiness, alcohol, physical discomfort, distractions, and emotional stress (job, money, family, or relationship problems, or jackhammers in the street). If men can't give sex the undivided attention it deserves—especially men over 40—their erections may decide to wait until next time. Work to eliminate stresses and

distractions. Invest extra time and effort in your relationship, in relaxation and sensuality. Your penis (and your lover) will thank you.

Myth: When I can't get hard, she says it doesn't matter. She's lying.

In surveys that have asked women how they feel about men with erection problems, here is by far their most frequent comment: I wish he wasn't as obsessed about the situation as he is.

For most women, a man's lack of erection is less of a problem than his anxiety, depression, anger, confusion, and emotional withdrawal because of it. Erection matters to women, largely because it matters so much to men. Women know that if a man can't get it up, he's going to be miserable, which affects her.

But erections are *not necessary for women's sexual satisfaction*. Only 25 percent of women are consistently orgasmic from vaginal intercourse. To have orgasms, most women need direct clitoral stimulation, with fingers, tongue, or a vibrator. In this context, erections don't matter to most women's orgasms. When a woman says that erection doesn't matter, what she usually means is that the couple can still have plenty of sensual fun—and great orgasms—without the man having an erection, and that things are likely to be better next time.

Myth: If a man can't raise an erection, the woman can't be sexually satisfied.

No, no, no. Men who believe this myth put tremendous pressure on themselves to get hard and stay hard. That stress wreaks havoc on erections.

This may come as a surprise, but the vagina is not well endowed with nerves that respond to sexual stimulation, and the deeper inside the vagina your penis goes, the fewer touch-sensitive nerves it finds. Most women enjoy intercourse for the physical closeness it involves, and because it's such a turn-on for so many men. But vaginal intercourse is *not* the key to most women's sexual satisfaction. Women's main source of sexual pleasure and satisfaction is the clitoris, located outside the vagina and a few inches above it, under the top junction of the vaginal lips.

Dozens of sexological studies show that only 25 percent of women are consistently orgasmic from vaginal intercourse. Three-quarters of women need direct clitoral stimulation at least some of the time, and an estimated one-quarter to one-third of women rarely if ever have orgasms during intercourse. Erection is not necessary to satisfy a woman, nor to have her consider a man a good lover.

Myth: If a man can't get an erection, he can't come.

Not true. Different sets of nerves control erection and orgasm. Men can have orgasms without erections (and erections without orgasm). Many men older men develop prostate cancer and as a result of treatment, lose the ability to have erections. But they can still have orgasms—marvelous, fulfilling orgasms—if they relax, enjoy leisurely, playful, mutually erotic massage, and receive vigorous penile stimulation by hand, mouth, or sex toy.

Myth: If can't get hard, she'll leave me.

It's possible, of course, but people tend to be more self-critical than they are critical of others. If a man can't raise an erection, the woman is more likely to believe that he's lost sexual interest in *her*, that he no longer finds her desirable, or that he's having an affair and is about to leave *her*. Couples rarely break up solely because of sex problems. If a man develops an erection problem, chances are she won't pack her bags. She's much more likely to want to help her lover resolve the problem or adjust to it.

Myth: Intercourse requires a rigid erection.

Actually, a semi-erection is usually good enough. There's no need to feel anxious if you're not completely firm. To enjoy intercourse with a semi-erection:

- Relax. Anxiety is likely to make erections subside even more.
- Ask for the stimulation you need. Tell your lover how you would like to be caressed to maintain your semi-erection. You might need more vigorous stroking than she's likely to provide without a specific request.
- Make sure the woman is highly aroused and well lubricated before you attempt insertion. It takes at least 30 minutes of kissing, hugging, and non-genital sensual massage for most women to become fully aroused— especially women over 40. When women are fully aroused, their vaginal lips part, allowing easier entry. Also, in women under 40, full arousal usually (but not always) means self-lubrication adequate for comfortable intercourse. But some women under 40 and most women over 40 do not produce enough vaginal lubrication for comfortable intercourse. There is nothing wrong with a woman who does not self-lubricate copiously. Some

women simply don't produce much. And beginning after 40, as menopausal changes develop, self-lubrication diminishes. At any age, if lubrication is a problem, use a commercial lubricant. Many sex therapists recommend lubricant every time, no matter how well the women self-lubricates.

• Ask her to keep fondling you as you insert and guide you in. She shouldn't let go until the head and upper shaft of your penis are inside her. This is easiest in the missionary and woman-on-top positions. If you enjoy the rear entry (doggie style), stroke yourself.

Myth: Lovemaking is impossible without an erection.

Absolutely not. Plenty of men who cannot physically have erections—prostate cancer survivors, men with spinal cord injuries, etc.—enjoy active sex lives, marvelous orgasms, and fully satisfied lovers. There's more to great sex than a firm erection. Even without an erection, kissing, cuddling, and extended erotic whole-body massage can lead to wonder sexual fulfillment. The vast majority of women need direct clitoral stimulation to have orgasms. Erection is not necessary for that. Use fingers, a tongue, and sex toys. And erection is not necessary for men to have orgasms. Vigorous stimulation of a flaccid penis by hand, mouth, or sex toys can produce fulfilling orgasms.

Myth: With age, all men develop ED.

Aging brings erection changes. After 40, men gradually lose the ability to raise an erection from fantasy alone. They need direct stimulation by hand, mouth, or sex toys. As the years pass, and men enter their 60s, it may take vigorous, extended stimulation before their penises respond, and when they do, erections may not become as firm as they used to, and they may subside without ongoing fondling. But that's not ED. That's normal, age-related erection balkiness. ED is the persistent inability to raise erections at all, even during masturbation.

ED is *not* inevitable with age. Even among men over 70, severe ED affects only about one-third of men. * Stress. Erection myths are stress-provoking. But many other stressors can also cause erection difficulties. Erections are very sensitive to stress. Stress impairs erection in two ways. It limits the amount of blood available to the penis, and the blood that is available has more difficulty getting into the organ. When stressed, the body initiates the "fight or flight reflex" that sends blood away from the core (the abdominal organs including the penis) and out to the arms and legs for escape or self-defense. As a result, less blood is available for erection. Stress also constricts the arteries, including the ones that carry blood into the penis.

Erection-killing stressors include: sexual misinformation, and relationships problems, and problems involving one's family, job, or finances.

- Acute Illness. Don't expect your penis to stand up if you can't. Any illness or injury can impair erection. Decreased sexual function is the body's way of directing its energy toward healing.
- Neurological Disorders. Multiple sclerosis, spinal cord injuries, and other conditions can damage the nerves involved in erection.
- Depression. About one person in eight suffers serious depression at some point in life. In men, depression may cause the classic symptoms: deep melancholy, weepiness, and an inability to get out of bed. But it also might cause anxiety, angry outbursts, and alcohol or drug abuse. Depression impairs erection.
- Antidepressants. The most popular medications used to treat depression are the selective serotonin reuptake inhibitors (SSRIs), including Prozac, Paxil, Zoloft, Luvox, and Celexa. The SSRIs cause sexual side effects in many people who use them. According to several studies, about 10 percent of men taking SSRIs report ED. Meanwhile, depression is a serious, potentially life-threatening condition that should be treated. The antidepressant least likely to cause sexual side effects is Wellbutrin.
- Alcohol. In *Macbeth*, Shakespeare wrote that the substance used worldwide to coax reluctant lovers into bed "provokes the desire, but takes away the performance." Alcohol is a leading erection-killer.
- Other drugs. Hundreds of drugs are associated with ED. Among over-thecounter medications, the ones most often linked to ED include: antihistamines (Benadryl, Dramamine). Prescription drugs associated with ED are too numerous to list here. Whenever you get a prescription, ask if it has sexual side effects. And if you develop erection difficulties shortly after starting a new drug, consult your physician. Perhaps another drug can be substituted with less risk of sexual side effects.
- Hormonal Imbalances. Other than diabetes, hormonal disorders are rare. But man-made hormone imbalances are increasing common, notably, the ones caused by athletes taking anabolic steroids. These hormones increase muscle mass, but often cause erection problems.

• Prostate Cancer Treatment. A common treatment for prostate cancer is removal of the gland (radical prostatectomy). Unfortunately, this operation often damages the nerves involved in erection, even with so-called nerve-sparing surgery.

Talking To A Lover About ED

Men and women have different feelings about ED. Men typically feel like failures and withdraw into brooding silence, or blame the woman for "not being sexy enough." Men tend to view ED as a mechanical problem and look for a quick fix, e.g. Viagra.

Women typically view ED as a relationship problem and want to work on the couple's issues. They may also blame themselves for the situation. When men withdraw, as far as women are concerned, that only aggravates the problem because it interferes with couple communication, and makes the woman feel more isolated and responsible. Women say they wish men wouldn't become as obsessed with ED as they do. For most women, a man's lack of erection is less of a problem than his anxiety, depression, anger, confusion, and withdrawal because of it.

If you're a man with ED, don't blame your lover and don't withdraw from her. Instead, talk about how you feel. Ask her how she feels. Review the causes of ED and see if any apply to you or your relationship. If you have any medical problems that might contribute to ED, consult a physician. If you have sexual issues or relationship problems, discuss them, try to work them out, and perhaps consult a couples counselor or sex therapist. ED can usually be resolved, but couples need to work together to do so. It's a team effort. To find a sex therapist near you, visit aasect.org, the American Association of Sex Educators, Counselors, and Therapists, or sstarnet.org, the Society for Sex Therapy and Research.

If you're a woman in a relationship with a man suffering ED, don't say, "It doesn't matter." It may not matter to your sexual satisfaction, but it matters a great deal to him. Don't blame yourself for the problem. You and your lover may have some sexual or relationship issues to work out, but his problem is not your fault, nor is it proof that something is terribly wrong with your relationship. Review the causes of ED and see if any apply. Reassure the man that his ED can be resolved, that you still love him, and don't consider him less of a man. Encourage him to confide in you. Offer to contact doctors and/or therapists to explore the causes of the problem and work toward a solution.

References:

Aschka, C. et al. "Sexual Problems of Male Patients in Family Practice," *Journal of Family Practice* (2001) 50:773.

Bacon, C.G. et al. "A Prospective Study on the Risk Factors for Erectile Dysfunction," *Journal of Urology* (2006) 176:217.

Dunn, K.M. et al. "Systematic Review of Sexual Problems: Epidemiology and Methodology," *Journal of Sex and Marital Therapy* (2002) 28:399.

Heiman, J.R. "Sexual Dysfunction: Overview of Prevalence, Etiological Factors, and Treatments," *Journal of Sex Research* (2002) 39:73.

Nikoobakht, M. et al. "The Relationship Between Lipid Profile and Erectile Dysfunction," *International Journal of Impotence Research* (2005) 17:523.

Rao, K. et al. "Correlation Between Abnormal Serum Lipid and Erectile Dysfunction," *Zhonghua Nan Ke Xue* [Chinese journal] (2005) 11:112.

Simons, J.S. and M.P. Carey. "Prevalence of Sexual Dysfunctions: Results from a Decade of Research," *Archives of Sexual Behavior* (2001) 30:177.

Thompson, I.M. et al. "Erectile Dysfunction and Subsequent Cardiovascular Disease," *Journal of the American Medical Association* (2005) 294:2996.