

Being unfit increases your risk of heart disease by 250%. It increases your risk of heart disease as much as smoking

Exercise lowers blood pressure and cholesterol, produces anti-oxidant enzymes and cuts heart attack risk by up to two thirds⁽⁷⁾

Sex reduces stress and boosts the immune system

A whole range of vitamins and minerals are also needed to maintain the immune system and produce the hormones that increase the sex drive

Chapter 12

Body weight, exercise, sex and cigarettes

Washing machines, cars and lifts all make our lives easier – and shorter.

The problem is that our bodies and our way of life are out of step. We were designed for a physical lifestyle, with high energy requirements and a high food and micro-nutrient intake.

Instead, modern technology means that most of us live a low energy lifestyle, with a low intake of calories and micro-nutrients. The main reason most of us in the developed countries are getting fatter is not so much that we are eating more, but rather because we are burning 500-800 fewer calories per day than our grandparents did.

The combination of exercising less, and consuming richer and more diverse foods explains why the number of overweight people shot up from 25 per cent of the adult population in 1986 to an astonishing 35 per cent today, a trend which shows no sign of slowing down^(80, 81).

Where will it end? In the USA, nearly two-thirds of all adults are overweight; with obesity incurring 100 billion healthcare dollars/year, making it a greater public health risk than smoking^(82,149). It's reached the point where obesity is considered by some to be as serious a health problem as Alzheimer's⁽⁸²⁾. Are we all doomed to follow, waddling, in their footsteps?

Keeping warm

Central heating, double glazing and thermal clothing reduce our exposure to cold – and reduce the number of calories we would otherwise burn in keeping warm.

“Lack of physical activity is already a global health hazard and is a prevalent and rapidly increasing problem in both developed and developing countries.”
WHO, 2003⁽⁸⁷⁾

Overweight = unfit = unhealthy?

Being overweight is a major risk factor for disease. When overweight tips into obesity, the risk of coronary artery disease increases by two and a half times⁽¹⁾. The risks of hypertension, diabetes and certain cancers are also raised ... but why is being overweight dangerous?

Overweight people tend not to take a lot of exercise. And there's a growing body of evidence that suggests that this is one of the reasons that being overweight causes ill health.

But lack of exercise doesn't just affect the overweight – it affects all of us, whatever build.

In fact, inactivity is as great a risk factor for heart disease as a 20-a-day cigarette habit, and is as bad as having hypertension or raised cholesterol^(2, 3). The unfit have two and a half times more risk of early cardiac death than the fit⁽⁵⁾; which is, interestingly, the same increase in risk associated with being overweight.

Taking exercise, on the other hand, has such a good effect that it overrides or neutralises any and all bad eating habits^(2,3).

And if you have other risk factors such as smoking, hypertension or high cholesterol, a good exercise programme reduces the risk of early cardiac death an amazing five-fold!⁽⁵⁾

Another way of looking at this is that you may have several risk factors, but if you are fit you are 1.7 times less at risk than your colleague who has no risk factors, but who is unfit⁽⁵⁾.

Just to prove the point, one large and long-term study at Harvard showed that men who took up moderate physical activity reduced their death rates by 17 per cent. Those who took up vigorous activity cut their death rates by 41 per cent, from coronary artery disease and all other causes⁽⁶⁾.

Lack of exercise may be the most important risk factor of all, because it is the most common risk factor, affecting 70% of all adults⁽⁴⁾.

Get up – and lose weight!

Increase the amount of daily exercise you take – walk up stairs rather than take the lift, get off the bus one stop early, throw the TV remote control away. Just 100 calories extra of physical activity a day could mean up to 6kg of weight lost in a year.

Move!

Weight loss diets are more successful when combined with exercise. This prevents metabolic slowdown⁽²⁰⁾, which makes so many diets fail⁽²³⁾.

THE DEFENCE BOOSTERS : **Body weight, exercise**

HOW TO CALCULATE YOUR BODY MASS INDEX

The Body Mass Index (BMI) is calculated by dividing your weight in kilos by your height in metres squared. For optimum health your BMI should be between 21 and 25. To save you having to use a calculator, we have worked out the figures for you.

Height	BMI = 21		BMI = 25		Height	BMI = 21		BMI = 25	
5' 0"/1.52m	7st	5lbs/46.7kg	8st	11lbs/55.8kg	5' 9"/1.75m	10st	0lbs/64kg	12st	1lbs/76.6kg
5' 1"/1.55m	7st	12lbs/50kg	9st	6 lbs/59.9kg	5' 10"/1.78m	10st	5lbs/65.8kg	12st	6lbs/79kg
5' 2"/1.58m	8st	2lbs/51.7 kg	9st	10lbs/61.7kg	5' 11"/1.80m	10st	10lbs/68kg	12st	10lbs/80.7kg
5' 3"/1.60m	8st	7lbs/54kg	10st	1lbs/64kg	6' 0"/1.83m	11st	0lbs/69.8kg	13st	1lbs/83kg
5' 4"/1.63m	8st	10lbs/55.3kg	10st	5lbs/65.8kg	6' 1"/1.85m	11st	4lbs/71.7kg	13st	7lbs/85.7kg
5' 5"/1.65m	8st	13lbs/56.7kg	10st	10lbs/68kg	6' 2"/1.88m	11st	9lbs/74kg	13st	12lbs/88kg
5' 6"/1.68m	9st	4lbs/59kg	11st	0lbs/69.9kg	6' 3"/1.90m	11st	13lbs/76kg	14st	5lbs/91kg
5' 7"/1.70m	9st	8lbs/60.8kg	11st	4lbs/71.7kg	6' 4"/1.93m	12st	5lbs/78.4kg	14st	8lbs/93kg
5' 8"/1.73m	9st	13lbs/63kg	11st	11lbs/74.8kg					

Why exercise works

The Honolulu Heart Programme Study, published in 1994, showed that physical activity reduces the risk of heart attacks by lowering blood pressure, improving blood sugar control in diabetics, and improving plasma cholesterol profiles⁽⁹⁾.

Specifically, exercise lowers levels of the 'bad' LDL cholesterol, and raises levels of the 'good' HDL cholesterol^(10, 13). Increased HDL levels help to remove cholesterol from the arterial walls, which is why exercise stops arteries furring up⁽¹¹⁾.

More, the increase in free radicals triggered by using extra oxygen to exercise causes the body to boost production of its own anti-oxidant enzymes. These remain active even when the exercise stops⁽⁷⁸⁾, which means you get better protection against oxidative stress, heart disease, and cancer as well^(5, 25).

How fit and how much exercise?

Fitness is most easily and conveniently measured by taking the resting pulse. If this is high, you're unfit⁽¹⁴⁾ and may be at risk⁽¹⁵⁾ (see the chart below). Regular exercise will bring it down⁽¹⁶⁾.

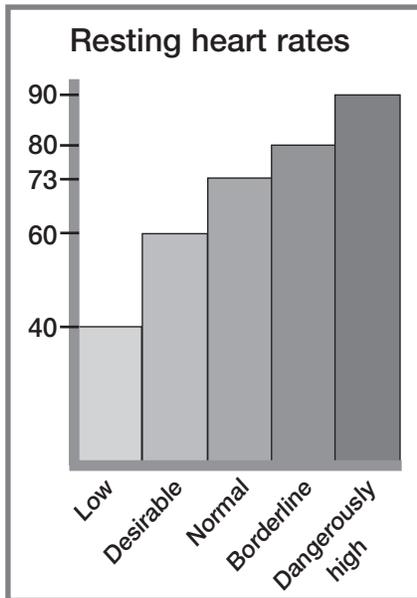
The minimum appears to be 20 minutes of exercise, repeated three times per week⁽³⁾. This should be enough to raise a sweat,

Health Warning

If you're unfit, you're over **twice** as likely to die from a heart attack.

Inactivity is more dangerous than simply being overweight. It's as unhealthy as smoking 20 a day, high blood pressure or high cholesterol.

Conversely, you can be overweight, have high blood pressure, high cholesterol, or smoke, but if you exercise you are less at risk than your unfit neighbour.



and your breathing and pulse rate by at least 30 per cent.

Try to take your exercise just before your main meal of the day. A brisk walk before a meal speeds the removal of fats from the blood after eating⁽¹²⁾. This almost certainly helps to reduce the risk of both heart disease and diabetes.

Good habits should start as early in life as possible. In children, low levels of physical inactivity correlate very strongly with a

tendency to fatness, and set up a pattern of life-long overweight⁽¹⁷⁾. This could be partly genetic – but good training can reduce the impact of bad genes. It's never too late!

Intensive exercise? Supplements essential

Very intensive exercise reduces blood glutamine levels, which suppresses the immune system and leads to a fall in IgA immuno-globulins in the saliva⁽¹⁸⁾. These immuno-globulins are designed to protect the mucous membranes of the mouth and throat from infection.

This fall in IgA explains why athletes are prone to infections of the upper respiratory tract. The run-down in immuno-globulins is probably caused by the excessive free radicals produced by intensive exercise, together with substantial reductions of plasma glutamine. (The amino acid glutamine is the basic fuel of the immune system.) The incidence of infection in athletes can be considerably reduced with the same daily combination of antioxidants^(19, 79), together with the other nutrients I recommend on page 348 plus glutamine at 2-4g immediately before and after strenuous exercise⁽⁸⁶⁾.

Fitter = healthier

Latest recommendations: 60 minutes/day of physical activity sufficient to raise a sweat leads to less coronary artery and vascular disease, type 2 diabetes, colon cancer and obesity⁽⁸⁸⁻⁹⁰⁾.

How fit are you?

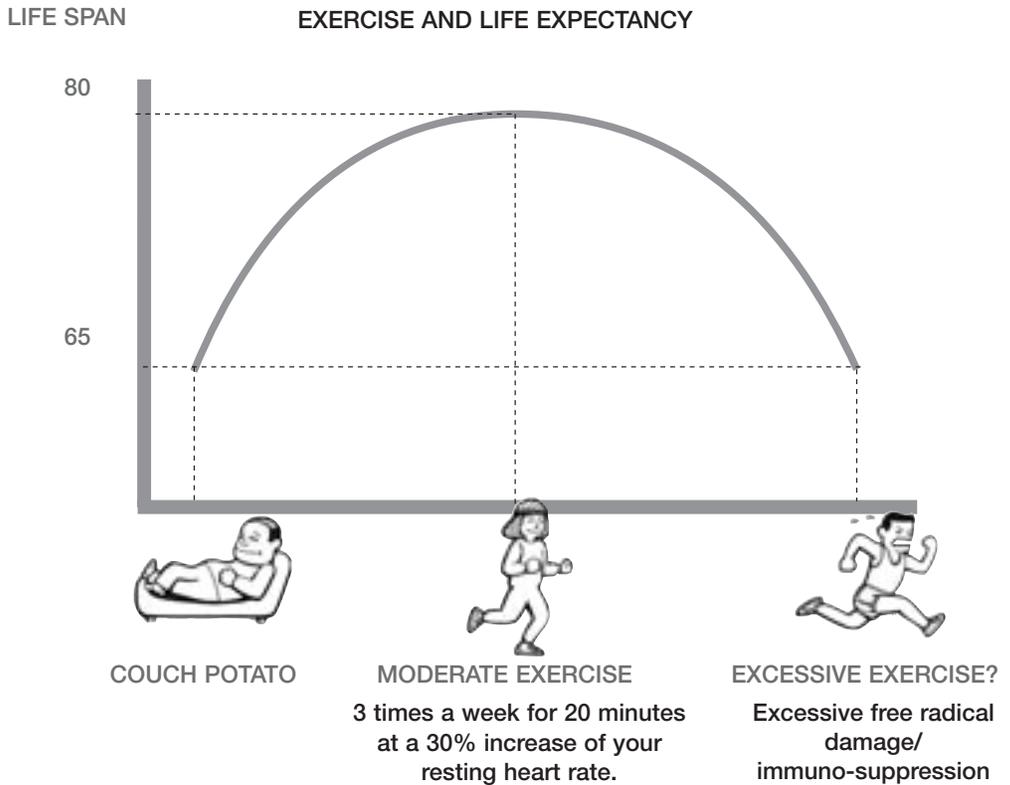
After exercise, how long is it before your pulse returns to the pre-exercise rate? If more than 10 minutes, you're unfit.

One third of the risk

One study in Finland, where heart attack rates were until recently the highest in the world, found that those who took a lot of exercise had only a third of the risk of the unfit, regardless of diet⁽⁷⁾.

Another trial showed that physical activity protects against strokes⁽⁸⁾.

THE DEFENCE BOOSTERS : **Body weight, exercise**



At risk from heart attacks:

- **The 25% who have cholesterol over the recommended 6.5 mmol**
- **The 30% who smoke**
- **The 70% who don't take enough exercise⁽⁴⁾**

The stiffness and pain the next day, which puts many would-be exercisers off is due to free radical damage in the muscles, and can be minimised, or avoided, with a well-designed, and comprehensive anti-oxidant programme^(21-24, 27, 28).

A weight loss combination

The problem with weight loss programmes is that, in the long run, they generally fail. Psycho-social pressures and other factors such as metabolic slowdown⁽²⁰⁾ undo the initial progress. Exercise helps⁽²⁰⁾; but there may be more you can do. Thermogenics are substances which increase the rate at which you burn calories. Combined with appetite suppressants, they should theoretically enhance early weight loss, reduce metabolic slowdown, and ease the psycho-social pressures which can break the diet routine.

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The 'best' thermogens, in the sense that they are safe and there is some data to support their use, are capsaicins, the 'hot stuff' extracted from chilli peppers; and guarana and/or coffee.

Capsaicin may work by inducing a rise in body temperature after eating (Dietary Induced Thermogenesis or DIT)⁽⁴⁹⁾. It's also a powerful anti-oxidant and can protect against oxidative damage to lipids and DNA⁽³⁰⁾.

Guarana acts rather like ephedrine (shown in Danish and British research to achieve weight loss when combined with caffeine). The net effect is that you burn a few more calories.

You could add Vitamin C to counter the increase in free radicals produced by an increased metabolic rate.

One interesting appetite suppressant is alpha hydroxy citrate (HCA). This is extracted from *Garcinia cambogia* – the Malabar tamarind^(31, 32). HCA stops the body storing calories from carbohydrate foods as fat, and stores them as glycogen in the liver instead⁽³³⁻⁴⁵⁾. The brain interprets this as meaning it has just had a large meal⁽⁶⁹⁻⁷³⁾, so appetite is reduced⁽⁴⁶⁻⁴⁸⁾, **but only if you are eating a high carbohydrate diet.**

Consider also organic chromium, usually derived from chromium enriched yeast, which can help to stabilise blood sugar levels. Chromium is an essential part of the Glucose Tolerance Factor, which is needed for the body to metabolise sugar and other carbohydrates^(51,52). Chromium depletion is surprisingly common^(53-55, 63, 65-68) and causes hypoglycaemia, a condition characterised by erratic glucose tolerance, mood swings, sugar craving and overweight, and which may be a form of latent or incipient diabetes.

Hypoglycaemia responds well to chromium supplements^(50, 56-61). If sugar craving is your thing, a chromium supplement may help.

Finally, fibre-rich foods containing inulin or non-digestible oligosaccharides (such as artichokes or oats) are bulking agents which produce a feeling of fullness in the stomach **and** form metabolites which may affect appetite (See Chapter 7, Pre-biotic fibre). Combined with the other ingredients, this may contribute to an overall lessening of appetite.

This combination approach has not to my knowledge been

A natural diet cocktail?

A combination of five natural extracts – tamarind, chilli, guarana, organic chromium and resistant starch – may help weight loss.

Chromium

If you have adult onset diabetes, chromium supplements reduce serum triglyceride levels⁽⁵⁰⁾, and probably reduce the risk of coronary artery disease.

Work with diabetic models shows that chromium supplements have additional benefits, and can help to reduce blood sugar levels, excessive water drinking and polyuria^(50, 62, 64).

Chromium/yeast supplements

Glucose tolerance, which often deteriorates with old age, can be normalised by non-toxic^(74, 75) chromium-containing yeast supplements⁽⁵⁶⁻⁶⁰⁾.

Avoid inorganic chromium supplements⁽⁷⁶⁾.

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tested – but seems worth trying.

It should have additional benefits including a reduction in cholesterol and homocysteine levels and, in some cases, a normalisation of blood glucose.

Conjugated linoleic acid (CLA) is currently fashionable but, in my view, there is not yet sufficient data to support its use in weight loss regimes.

Lose weight now?

Our genes and lifestyles may give us more or less risk of becoming overweight, but we can (if we wish) overcome them.

Be sceptical of ...

Combination Diets: These have had a lot of publicity but most nutritionists say the theory is rubbish, and they only work because they are camouflaged low calorie diets.

Crash diets: Cycles of weight loss and gain may increase the risk of heart disease. During every period of weight loss, fat metabolism is altered in a way which could theoretically put your arteries at risk^(83, 84).

Furthermore ...

Your metabolism plays a nasty trick on you when you diet. After a couple of attempts at dieting, the body learns to store fat more efficiently.

Not only do you find it harder to lose weight with every subsequent diet, but it also comes back more quickly when the diet is replaced by a binge!

Try less ...

Clothes: Wear fewer layers of clothing, and turn down the thermostat a little, you'll use up more calories just staying warm.

Workers in the Arctic Circle need up to 7,000 calories a day just to maintain their weight. (Not for the inactive elderly, who must be careful of hypothermia!)

Fats: Watch your balance of fats (no more than 30% of your calories should come from fat), and reduce that if you can to 25%.

Sweet and starchy foods: Watch your intake of sweet and starchy foods, now strongly linked to Type 2 diabetes and all its complications. Throw out the potato, change to pasta. Switch from processed, white-flour products to whole-grain, higher-fibre equivalents, and fill up on low-sugar fruits such as apples, pears and plums. If you need a sweetener, the science shows that aspartame is a healthier alternative.

Try more ...

Meals: rather than snacks.

Food eaten as a meal gives you less calories than the same amount of food nibbled throughout the day, as more of its energy is burnt off as DIT (see page 173).

Coffee: Drunk with a meal, coffee will help you burn off some of those excess calories.

Activity: A recent study of Cambridge housewives found they used 100 calories per day less than in 1980, because they used so many labour-saving devices.

Exercise three times a week for 20 minutes. Don't drive to the shops when they're only 200 yards away!

Find a form of exercise you enjoy. And on that note ...

Sex is good for you

The hazards of unprotected sex in non-monogamous relationships are well known. Less well known is the fact that anti-ageing researchers have commented that people showing the slowest ageing rates have, in general, a particularly well-developed libido and sex-life⁽⁸⁵⁾.

This may be because good sex is profoundly de-stressing – and stress certainly accelerates the ageing process.

Not tonight, darling

But when the lights are low, is your libido too? Look in the back of most newspapers and you'll find small ads offering help to men suffering from low sex drive.

You won't find offers of similar help for women – which seems unfair, as women can also experience periods of low libido. Society puts much more pressure on the male to be virile, so he's far more likely to think of his symptom as a problem, and run for help, than the female. But sometimes she needs help too.

Sexuality is a complex and sensitive thing, and the lack of desire can have many different causes. Partnership difficulties often manifest themselves in bed, or there could be psychosexual problems; but, where a relationship is otherwise healthy, the problem may be rooted in the body rather than the mind.

It could be your hormones

Some cases of decreased sex drive have medical causes. Thyroid insufficiency, for example, can squash the libido to almost zero. Treat the underlying medical malfunction, and a whole range of symptoms, including the sexual ones, disappear.

Hormonal changes associated with the menopause are a more common cause of low libido, and can be reversed by Hormone Replacement Therapy (HRT) or the phytoestrogens in soy. But it's not just a question of oestrogen: the main libido-determining hormone, in women as well as men, is testosterone.

Sex and the immune system

IGA is an antibody found in saliva which defends against colds and flu.

Stress reduces IGA levels; but regular sex can increase levels of IGA in the blood by up to 30% .

THE DEFENCE BOOSTERS : **Body weight, exercise**

In some women, a fall in sex drive is caused by low levels of testosterone, and testosterone replacement therapy, available from some private clinics and hospitals, can help.

Sexy sauna ...

The sauna could not have been better designed to raise the sexual temperature.

The heat, cold and birch twigs all combine to raise noradrenaline levels – and what do we associate with saunas, if not sex?

TESTOSTERONE – HANDLE WITH CARE!

Testosterone replacement therapy should **only** be administered by a professional.

One couple turned up at a Harley Street clinic with the husband complaining of his wife's lack of interest in sex. Her testosterone levels were indeed on the low side – but not low enough, in the consultant's opinion, to merit replacement therapy.

Two months later the husband returned. He had obtained testosterone tablets, illegally, and had been putting very large doses in his wife's food. Her sexual appetite had risen dramatically, to the point where he was finding it difficult keeping up with her.

She had begun to grow a moustache and had become so assertive that he was no longer able to cope. He felt sexually inadequate and was convinced she was having affairs with at least two other men.

At this point he decided to confess his sins. Unfortunately his wife was still under the influence of the unofficial testosterone therapy. In the ensuing argument she beat her husband severely, wrecked the family home and trashed the car. No charges were filed!!

... and sexy swimmers



Swimming in cold water gives your levels of the 'sexy' hormone noradrenaline a boost. So do rows, mild pain, exposure to cold and danger!

More hormones

Lack of exercise lessens desire. Don't start running marathons, however, as the hormonal changes caused by serious athletic training kill sexual appetite. Moderate exercise, however, has quite the opposite effect.

Swimming, in particular, has put a sparkle in many a woman's eye. Why swimming? Dr John Moran, a well-known psychosexual consultant based in London's Harley Street, explains: "Swimming twice a week definitely gives the libido a boost. The loss of body heat during swimming triggers a surge of noradrenaline into the bloodstream, which tickles the pleasure centres in the brain and makes you feel sexy."

This might explain the otherwise incomprehensible behaviour of those dedicated men and women who break the ice on frozen rivers and lakes to go bathing on New Year's Eve.

There are some, however, who become addicted to the noradrenaline rush. These are the compulsive thrill seekers, the bungee jumpers and the devotees of sado-masochism. "Mild to moderate pain," says Dr Moran, "produces the same surge of noradrenaline as cold does, and this is one of the aspects that gets some people involved in the S & M scene. But it goes farther than that, because any sort of aggression can produce noradrenaline.

"A row has the same effect, and you know how many rows are followed by sex. Some people learn this subconsciously, and use rows as a kind of foreplay."

Seasonal sex

If cold was critical you'd expect people to feel sexier in the winter, but it's more complicated than that. For one thing there's central heating; for another, the dim days and long winter nights bring on melatonin, the 'dark hormone'.

Bright light brings melatonin production grinding to a halt, but switch the lights off and levels of the hormone shoot up. Melatonin is a calming hormone, which is one reason we prefer to sleep in the dark, and one reason why many couples prefer making love with the lights on.

Melatonin is also involved in Winter Depression, or Seasonal Affective Disorder. SAD sufferers have little interest in sex; all they want to do is binge on carbohydrates and sleep, almost as if they were trying to hibernate. Intense light lifts their depression and boosts their sex drive. (Sparrows are surprisingly similar. City lighting allows metropolitan birds to enjoy sex all year round while their rural counterparts only do it in the summer months.)

The sexiest weather conditions combine cold to boost noradrenaline, and bright light to reduce melatonin. This is an uncommon combination in many cities but not in the ski resorts, which could explain both après-ski and the legendary reputation of the ski instructor!

Paris in the Spring

If you're no good on skis, take a spring break in Paris. For centuries the town gallants have been in the habit of walking their fiancées in parks where the horse chestnut trees grow.

The animal and plant kingdoms use the same sexual attractant pheromones, and horse chestnut blossom reproduces the steamy atmosphere of a bedroom where tumultuous sex has just taken place. The effects are claimed to be rapid, and sustained.

Dark days – dark nights

The calming hormone melatonin is produced in the dark. Too little light can trigger SAD in the winter and switches off your sex drive.

THE DEFENCE BOOSTERS : **Body weight, exercise**

BONUS !

The preventative health-care formula I recommend on page 348 contains most of the nutrients needed for a good sex life.

DHEA

The steroid DHEA may be another key element in male and female sexuality. It is associated with increased libido in both sexes.

No sex please – we're cyclists

Male cyclists beware! Badly designed bicycle saddles put pressure on the penile nerves and arteries, resulting eventually in tissue damage.

Too many hours in the saddle lead to downtime in bed.

In-built aphrodisiacs

Various hormones are involved in regulating sex drive, including oestrogen, progesterone and testosterone. Their synthesis requires niacin (B3), Vitamin B5, Vitamin A or beta carotene, zinc, and manganese.

The vitamins and minerals cited above should be taken regularly for at least 20 days before any effects can be expected. In addition, in cases where it may be necessary to address significantly low levels of sexual desire, you might try the amino supplements tyrosine and arginine, which are involved in the production of neurotransmitters that stimulate alertness, excitement, desire and physiological arousal.

Male impotence

Most cases of male impotence have a physical cause. Various anti-hypertensive, anti-ulcer and other drugs have been implicated and a simple change of prescription can often help.

Where severe, chronic impotence has been caused by damage to blood vessels or nerves supplying the penis, a different approach is called for.

Blockage of the penile arteries is generally caused by the same process that blocks the arteries supplying the heart. Damage to the nerves is often caused by the oxidative stress that is also associated with diabetes.

In both cases, a high-dose anti-oxidant and PUFA replacement programme (see Chapters 14, Heart disease, and 16, Diabetes), maintained over a period of at least 12 months, may help to regenerate the damaged tissues.

The programme should include Vitamins C, E and the B group; mixed carotenoids; grapeseed extract; and a balanced Omega 3 and 6 oil mix (eg hemp oil). And stop smoking!

There is a herbal product becoming available in the UK which can help with erectile dysfunction. It's cheaper and more effective than the well-known drug⁽⁹¹⁾.

17 ways to kill yourself with cigarettes

You already know that smoking is seriously bad for you. The decision not to smoke is the biggest single contribution you can make to your own health and long life. If you – or anyone near you needs convincing – read on.

Thanks to the tobacco multinationals, lung cancer has overtaken breast cancer to become the leading cancer death in most developed countries^(69, 113) and is rapidly moving towards the number one slot in the developing countries too.

Cigarette smoke hits the immune system hard. In the airways, it harms the immune cells which normally protect us against the inhaled micro-organisms that cause coughs, colds, sore throats and bronchitis.

This is why smokers are more prone to all these illnesses; but, more worryingly, tobacco smoke damages immune cells elsewhere in the body too. This is why smoking is associated with an increased risk of cancer not just of the lungs, but also the mouth, larynx, oesophagus, bladder, pancreas and cervix⁽⁹⁵⁾.

Smoking is linked to increased levels of rheumatoid factor and other auto-antibodies in the blood⁽¹⁰³⁾, and almost certainly increases the risk and the severity of arthritis⁽¹⁰⁴⁾. Arthritis is more common in women, and there is mounting evidence that women are especially at risk of tobacco-related disease.

Smoking advances the menopause by two to three years, erodes the bones⁽¹²⁹⁾, and increases the risk of osteoporosis and osteoporotic bone fractures⁽⁹⁷⁾, a major cause of pain and disability in later life.

In younger women who smoke during pregnancy, cigarettes increase the risk of miscarriage by over 25 per cent⁽⁹⁸⁾. In surviving babies, the risk from disease and death in childhood is also increased⁽⁹⁸⁾.

In another blow against equal opportunities, recent evidence indicates that women smokers may be up to twice as likely to get lung cancer than men, even if they smoke less⁽¹⁰⁹⁾.

However, although the 35-year-old woman smoker can expect to live five years less than her non-smoking sister, men fare even worse.

How cigarettes damage your health

Each puff of smoke you inhale from a cigarette or joint contains over 10^{14} (100,000,000,000,000) free radicals⁽¹¹⁵⁾.

This huge intake of free radicals uses up the body's natural anti-oxidant defences⁽¹⁴³⁾, which is why smokers have lower levels of Vitamins C, E, glutathione, selenium, the carotenoids and other anti-oxidant micro-nutrients^(126-128, 130,131).

Vitamin C is one of the first anti-oxidants to be used up: even passive smoking reduces your Vitamin C levels⁽¹¹⁹⁾. Stopping smoking has the opposite effect: within days, levels of Vitamin C and other anti-oxidants in the blood rise towards normal⁽¹⁴⁴⁾.

Reduced levels of anti-oxidants damage lung tissue, leading to bronchitis and emphysema⁽¹¹⁴⁾. They also damage vessel walls and cause cholesterol oxidation, and increased platelet stickiness. Nicotine narrows the blood vessels and raises blood pressure – a perfect recipe for heart attacks.

Free radicals cause DNA damage, leading to cancer.

THE DEFENCE BOOSTERS : **Body weight, exercise**

The good news ...

- People do quit.
Nearly 25 per cent of the British population are ex-smokers and the health benefits of stopping are vast.
- Within weeks of quitting, the sense of taste and smell improve. The lungs are already cleaner, and you'll feel less wheezy and short of breath. General health improves, and you'll need less time off work due to sickness.
- Within one or two years, your risk of heart attack is reduced to half of the smoker's risk.
- At three years, your risk of heart attack has fallen to that of a non-smoker.
- At 10 years, the risk of lung cancer has fallen by half⁽¹⁷²⁾.

A male smoker at age 35 can expect to die seven years before his non-smoking brother, because of the higher rates of heart attacks in middle-aged and elderly men⁽⁹⁵⁾. As if that weren't enough, male smokers are more likely to become impotent, due to degenerative changes in the blood vessels supplying the penis⁽¹⁴²⁾.

You may think that none of the above applies to you, because you don't smoke that many cigarettes, and the ones you do smoke are low tar. But one in two smokers will die of their addiction, and the majority of those who die are not the heavy smokers, who are fewer in number to start with^(107, 108), but the light to moderate smokers. And if all that isn't enough to persuade you to stub out your last cigarette, consider the following summary^(95, 106):

Cigarettes cause:

- 4 out of 5 cases of lung cancer
- 3 out of 4 cases of bronchitis and emphysema
- 1 in 5 heart attack deaths
- Low immune system – leading to illnesses and cancer
- Worsening arthritis
- Earlier menopause
- More osteoporosis
- Male impotence
- Greater risk of miscarriage and childhood death
- A shortened lifespan – smokers on average lose one day of life for every week they smoke
- One death in every six

The only good news I can possibly offer is that, **while** you are giving up smoking the combination of anti-oxidants, flavonoids, isoflavones and PUFA (Omega 3) supplements that I recommend on pages 348-349 will provide some measure of protection.

A safer smoke?

The human body is extremely resourceful and adaptive. As part of the body's response to the insult of smoking, it boosts its levels of anti-oxidant enzymes – but not by enough.

Even though anti-oxidant enzymes are raised in the red blood cells of smokers, the cells' much reduced content of anti-oxidant vitamins means that they are still more vulnerable to oxidation than the cells of non-smokers^(111,135).

Much of the damage caused by cigarettes is due to free radicals. So could taking anti-oxidant supplements make tobacco safer? We know that lifestyle habits can modify the risk of tobacco-induced illness. For example, the French and the Japanese smoke as much or more than British and Americans do, yet suffer from less heart disease and less lung cancer.

Many scientists believe that this relative immunity is due to their increased anti-oxidant intake. Many also believe that anti-oxidant supplements offer a degree of protection against some of the dangers of cigarette smoking⁽¹³²⁻¹³⁴⁾.

A 50% risk

One in two smokers dies from his/her addiction.

Light to moderate smokers, even those smoking low tar, still run a substantial risk.

The case for anti-oxidants

- Anti-oxidant depletion in smokers contributes to their reduced sperm counts and low fertility. Vitamin C supplements, at over 200 mg/day, improve sperm quality in smokers⁽¹¹⁷⁾. Vitamin E reduces platelet damage in female smokers⁽¹⁴²⁾.
- Vitamins C and E protect against lipid oxidation^(135, 138-140) which should help to protect against heart disease. To protect proteins from oxidation, glutathione is needed, although Vitamin C has some protective effect⁽¹¹⁰⁾.
- A genetic error in one of the major anti-oxidant enzymes, glutathione-S-transferase, has been linked to an increased risk of lung cancer in smokers⁽¹¹²⁾.



SMOKERS LOOK FOR ...

a supplement with
at least

Vitamin C 600mg

Vitamin E 400IU

Mixed carotenoids
50-100mg

Mixed flavonoids 500mg

plus copper, zinc,
magnesium and
selenium

THE DEFENCE BOOSTERS : **Body weight, exercise**

The case against beta carotene for smokers

Two studies^(147, 148) found a significant **increase** in lung cancers in smokers who were given beta carotene supplements. In these men, many of whom already had cancer when the trial started, the supplements encouraged tumour growth.

When beta carotene (or any carotenoid) is oxidised, it becomes a pro-oxidant, unless it is recycled by Vitamin C. A smoker's lungs are full of oxygen and free radicals, and low in Vitamin C; exactly the conditions which produce beta carotene radicals, which in turn cause increased DNA and other tissue damage.

Carotenoids should, therefore, always be combined with Vitamin C, and a comprehensive package of the other anti-oxidants.

That's why I recommend that good nutritional supplements should contain a full spectrum of the protective nutrients; and why you should eat a variety of fruits and vegetables.

- Combination anti-oxidant supplements decrease the amount of oxidative damage in smokers' white blood cells⁽¹¹⁶⁾. The supplements also reduce the amount of DNA damage^(118, 137), which should mean a reduced risk of cancer.

There is general agreement among scientists and clinicians that eating more fruit and vegetables is a good thing. The health hazards of smoking are probably exacerbated by the fact that smokers eat, on average, less fruit and vegetables than non-smokers. As a result, they have a lower intake of anti-oxidant vitamins^(141, 145, 146) and other protective phyto-nutrients.

In addition, the fact that they take less exercise means that they tend to have lower levels of the 'good' cholesterol, HDL. All the above factors would increase the risk of coronary artery disease and cancer^(105, 145).

Smokers who cannot cure their addiction but who wish to protect themselves as far as possible from its ill effects, should do so by increasing their intake of fresh fruit and vegetables. The vegetables should include plenty of cabbage, broccoli, Brussels sprouts and beans. In addition, supplements containing Vitamins C, E and the B group, mixed carotenoids and flavonoids; and the minerals selenium, copper, manganese and zinc, are well worth taking.

Finally, eating more oily fish (mackerel, sardines, trout, etc) would seem to be a good thing. This has been shown to improve lung function, even in smokers^(122, 123), and to significantly reduce the risk of chronic bronchitis and emphysema⁽¹²⁴⁾. This should be combined with anti-oxidant and other supplements.

WHAT CIGARETTE COMPANIES REALLY THINK

"It's the perfect product – costs a dime to make, a dollar to sell, and it's addictive."

"We don't smoke the stuff, we just sell it. We reserve the right to smoke for the young, the poor and the stupid."

(Quotes from known senior tobacco company executives, but non-attributable due to the libel laws)

SUMMARY

Slim and fit:

- Eat more carbohydrate-rich vegetables and cereals – they are less calorie-dense and take more energy to digest.
- Exercise for 20 minutes, three times a week – that's walking two miles in under 30 minutes, or walking two miles a day, in three 10 minute periods.
- Exercise before a main meal.
- Make your body work to keep you warm – fewer clothes, turn the heating down, and sleep cooler.
- Drink a cup of strong coffee with each meal to burn up calories, or try caffeine tablets.
- Sugar cravers and adult-onset diabetics should try organic (trivalent) chromium supplements and a pre-biotic.
- Learn a de-stressing technique. Stress reduces testosterone levels, and relaxing brings them back up again.
- Take Vitamins C, B complex, E, the carotenoids, zinc, manganese. These enable the body to produce the hormones and other compounds needed for arousal.
- If all else fails, try a good bed-time row!

Smokers should:

- Stop!
- Eat more vegetables, particularly cabbage, broccoli, Brussels sprouts and beans; and fruit, especially red, orange and blue fruits.
- Eat more oily fish such as mackerel, sardines, trout, etc.
- Supplement with Vitamins C, E and B, alpha lipoic acid, a full spectrum of carotenoids and mineral supplements containing selenium, copper, manganese and zinc.
- Try an anti-inflammatory flavonoid such as green tea or turmeric extract.

Sex and health:

- Sex reduces stress and increases immune levels.
- Moderate exercise boosts interest in sex – swimming twice a week is recommended.
- Forget mood lighting – try turning up the house lights.