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Garlic //

Effects on serum lipids, blood pressure, coagulation, platelet aggregation, and vasodilatation

The use of garlic (*Allium sativum*) for its purported health giving properties has an honourable tradition, being mentioned in 22 of 800 herbal remedies in the Codex Ebers, an Egyptian medical papyrus of 1550 BC. Bottom, however, acknowledged its major side effect when instructing his actors to "eat no onions nor garlic, for we are to utter sweet breath."[1] Garlic has been advocated for various ailments including heart disease, headache, bites, worms, tumours,[2] cancer, and infections.[3] Recent work suggests that it has a possible role in reducing vascular disease. Popular interest is currently greatest in Germany, where garlic preparations are the largest selling over the counter drugs.[4]

Garlic's principal active agent is allicin, a sulphur containing compound, which, with its breakdown products, causes the characteristic odour.[2] Allicin is formed enzymatically from an odourless precursor, alliin, when cloves are mechanically disrupted. Other biologically active compounds related to allicin, such as ajoene, may also be extracted from fresh garlic.

Garlic has beneficial effects on coagulation, platelet aggregation, vasodilatation, and serum lipid concentrations. A fall in fibrinogen[5 6] and an increase in fibrinolysis have been reported.[5] Garlic extract reduces the formation of acute platelet thrombus in vivo in stenosed coronary arteries in dogs[7] and synthetic allicin inhibits platelet aggregation in vitro,[8] although the mechanisms are unclear.[9-11] Garlic's vasodilatory properties have been shown in human skin[12] and conjunctival vessels.[13] The packed cell volume, plasma viscosity,[6] and blood pressure all fall with garlic.[5] Concentrations of triglycerides and total and low density lipoprotein cholesterol fall with garlic while the concentration of high density lipoprotein cholesterol rises[5 14] (although there have been contradictory studies[15]). A recent review concluded that whereas large doses of fresh garlic (7-28 cloves a day) had beneficial effects on cardiovascular risk factors, data for commercial preparations were unconvincing and there was inadequate evidence to recommend garlic supplementation.[16]

One reason for the difficulty in showing the effectiveness of garlic is that active ingredients may be lost in processing.[2] Carefully dried sliced cloves retain their potency, but extracts or oils prepared by using steam distillation or organic solvents may have little activity.[17] In addition, the alliin content of natural garlic may vary 10-fold. Standardising garlic products by using their potential for releasing allicin has been suggested.[17]

Criticisms that previous studies may have used inactive products and were poorly designed[16] have recently been met by a placebo controlled, randomised, double blind four month study in 261 German patients with hyperlipidaemia.[18] In those taking 800 mg dried garlic powder a day (Kwai, with 1·3% allicin) serum concentrations of total cholesterol fell from 6·87 to 6·07 mmol/l and of triglycerides from 2·55 to 2·12 mmol/l. A smell of garlic was reported (most frequently by spouses) in 21% of treated patients and 9% of those taking the placebo. A similar dose of garlic taken for three months in another controlled study was associated with a significant fall in blood pressure from 171/102 to 152/89 mm Hg in hypertensive patients, with one in eight reporting an odour of garlic.[19]

Confusion clouds the issue of "odourless" garlic preparations: Is it the odour of the tablet or recipient that is being described? Some garlic preparations contain no active ingredients and do not smell. Active preparations may themselves be odourless, but if allicin is released on ingestion there will be a substantial chance of a detectable aroma. "Odour blockers" seem ineffective.[17] Other side effects such as gastrointestinal disturbance, asthma, and contact dermatitis are uncommon, although a spinal haematoma has been attributed to the antiplatelet effects of garlic.[20]

Evidence that garlic reduces cardiovascular risk factors is accumulating but is incomplete. Some garlic preparations may be useful in treating hyperlipidaemia and hypertension, but concomitant reductions in morbidity and mortality remain to be shown. The possibility of detectable aroma seems an inevitable consequence of ingesting an active garlic product. A late twentieth century Bottom would recognise that the potential benefits of garlic may be offset by the social consequences of uttering without sweet breath.

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Tattoos

Marked for life

Tattooing appears to be achieving social respectability, particularly among young women. Various international celebrities are publicly displaying tattoos, even Eddie Grundy has been exhibiting his new design in *The Archers* on national radio. The appeal of these personalities is predominantly to young adults, who have come to regard tattoos as fashionable.

Tattoos have been recorded since antiquity and reached a high art form in the Maori and Polynesian races. The word tattoo is derived from the Tahitian *tatau*. The designs indicated allegiance to a group, signified pair bonding, or were an initiation to manhood.[1,2] Little has changed over the centuries. In 1969 the average age of those being tattooed was 16 years[3] and a bill was introduced to introduce an age limit of 18 years. the paper by Hall-Smith and Bennett (p 397) shows that the peak age of those being tattooed has not changed in 20 years.[4] The current statute controlling skin piercing is the Local Government Miscellaneous Provisions Act 1982. It sets out the minimum age at which a person can be tattooed (18 years); the requirement for registration of tattoo parlours; and guidelines on hygiene. Signing a consent form is not required.

Interviews with tattooists and local environmental health departments, which are charged with controlling tattoo parlours, indicate that the law is policed at best patchily and is widely ignored by those who are unregistered. In addition, there is no internal regulation of tattoo artists. Attempts to trace the addresses of two tattooing associations provided by one environmental health department have been unsuccessful.

Registering with the local environmental health department is the responsibility of the artist and the cost varies among areas. Equipment for tattooing is widely available through mail order firms and, because premises are not required, registration can be avoided. The extent of the problem is shown by one tattooist's estimation that most "professional" tattoos are performed on unregistered premises.

The association between tattooing and infection is well known and hepatitis B has been the most serious reported infection to date.[5] Although transmitting HIV is theoretically possible, no case has yet been reported. Tattoo needles are not disposable, and, although environmental health departments recommend using autoclaves for their sterilisation, ultrasonic and chemical cleaners are widely used.

People with tattoos may come to regret the art work that they carry. Because of tattooing's association with criminality and personality disorders[6] a tattoo may hinder a person's prospects for employment. For example, the Royal Navy will not take women who have a tattoo and the police will not employ men with tattoos on their forearms.

Requests for removing tattoos are a common source of referral to plastic surgeons and dermatologists. All methods of removal, including lasers, will leave a scar: patients rarely appreciate that an invisible mend is impossible. Although the scar may give a poor cosmetic result, the patient may be able to pass it off as the result of previous injury. Tattoo artists offer a removal service using either overtattooing with another design or tattooing tannic acid or "Milton" (hypochlorite) into the area to induce a partial thickness burn. They will treat only small areas.

Plastic surgeons and dermatologists use two techniques. They either produce a controlled partial thickness burn (usually healing within three weeks) by salt abrasion, applying trichloracetic, formic, tannic, or nitric acids, or with liquid nitrogen. Or they surgically remove the pigment by dermabrasion, by tangential excision with or without split skin graft, or through full thickness excision with tissue expansion, direct closure, or split skin grafting. Carbon dioxide, argon, ruby, and dye tunable lasers and infrared coagulation have all been used. For blue-black tattoos the ruby laser gives the best combination of pigment removal and residual scarring,[7] but at present machines and—more importantly—expertise are not widespread in either the public or private sectors.

Whether the removal of tattoos is a procedure that should be provided by a severely cash limited health service is open to debate. Careful analysis of the costs and benefits is needed. We may all come to regret past indiscretions. Those who request tattoo removal are generally well motivated and, if the service is not available on the NHS, they may become victims of unscrupulous practitioners in the private sector.

While a person has a right to be tattooed, the risks of the procedure and its permanence should be highlighted by health education campaigns aimed particularly at young adults. Improved policing of the law, tighter restrictions on the sale of tattooing equipment, and closer monitoring of advertising standards and clinics involved in tattoo removal are all required. If customers wish to be marked for life the risks involved both in being tattooed and having a tattoo removed should be minimised.

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