

Considerations around changing policy regarding condom thickness

The following points present themselves for consideration as individual gay men or those involved in condom distribution decide what thickness of condom to favour.

Reasons for sticking with 'extra strong' condoms:

- A conviction that 'extra strong' condoms are less likely to fail during anal intercourse and that a change to thinner condoms would lead to increased HIV infections
- A concern that research published to date may not show differences in condom failure among men away from experimental conditions or in other population groups (e.g. men not in couples/without previous experience of their partner)
- A concern that future research could ultimately show a difference in failure rates between condom types
- A concern that changing long-established advice might mean men stop believing health promoters' messages

■ Some men feel a psychological benefit in using condoms they perceive to be stronger. If 'standard' condoms are promoted would men feel unease, especially if they subsequently experienced failure?

Reasons for promoting 'standard' condoms

- A conviction that 'standard' condoms are no more likely to fail during anal intercourse than 'extra strong' ones (and that, on balance, current research demonstrates this)
- The thinner a condom the more acceptable it is to the condom wearer in terms of sensation

■ Condom use may increase, especially among men who dislike 'extra strong' condoms

■ Men will be encouraged to no longer view 'standard' condoms as unsuitable or unusable

■ Men already choosing 'standard' condoms will no longer be outside official 'safer sex' guidelines

■ Gay men can use with confidence condoms distributed free to the 'general population'

■ 'Standard' condoms are more widely available to buy in retail outlets and are cheaper to buy for both gay men and condom distributors

■ Greater product choice as contoured, ribbed and differently sized condoms all come in 'standard' strength (although some 'novelty' condoms are not suitable for sexual use)

■ Users are not identifiable as homosexually active as when using 'extra strong' condoms

■ Brings UK into line with North America and Australasia, creating a common condom message in much of the English-speaking world.

Although the consensus around condom thickness has broken down, one belief unites all health promoters, namely,

'Any condom is better than no condom'

There are currently plans among academics in the field of health promotion and health promoters themselves for a comprehensive literature review of existing research into condom thickness and anal intercourse. There is also the possibility that new research will be commissioned.

Notes

(1) It is even possible to find some organisations telling gay men that 'standard' condoms cannot be used at all for anal sex: "'Normal' condoms cannot be used for anal sex as they are not strong enough" from Outzone young gay men's project's website.

(2) Golombok S, Harding R, Sheldon J. An evaluation of a thicker versus a standard condom with gay men, AIDS 2001 15:245-250

(3) Gerofi J et al, A study of the relationship between tensile testing of condoms and breakage in use Contraception 1991; 43:177-85

(4) Italy: Circolo Mario Mieli 'safer sex' leaflet, Spain: Stop Sida, Barcelona leaflet for gay and bisexual men, Germany: Deutsche AIDS-Hilfe web site, Wismar AIDS-Hilfe web site, Dresden AIDS-Hilfe web site, Austria: Stop AIDS Graz Geil Und Safe web site.

(5) (6) Edward King, prominent within Terrence Higgins Trust as its condom policy was being formulated, cites Dutch research ca. 1987 and breakage rates during vaginal sex as probable influences on its decision to promote 'extra strong' condoms, along with caution over promoting any anal intercourse; 'As late as 1987 the Terrence Higgin's Trust's Policy Group was still split over whether the Trust could recommend anal sex with condoms in any circumstances.' (reported in Michael Carter's AIDSMAP website article of June 2002, Thick or thin?)

(7) For more on perceptions of the effect of anal sex on condoms see Allan Hildon's presentation on condom thickness to the 2001 CHAPS conference. Rolling it on a bit thick - the promotion of anal strength condoms in the United Kingdom. (www.tht.org.uk/chaps/condomthickness.pdf)

(8) Research referred to in this briefing concerns latex condoms. Polyurethane condoms (marketed in the UK by Durex under the name Avanti) measure 0.04mm and are much thinner than 'standard' latex condoms. A growing amount of evidence points to polyurethane condoms being more likely to tear than latex condoms of whatever thickness.

(9) Richters J, Kippax S, Condoms for anal sex. In: Mindell A (ed.). Condoms. London: BMA; 2000

(10) Wigersma L, Oud R, Safety and acceptability of condoms for use by homosexual men as a prophylactic against transmission of HIV during anogenital sexual intercourse. BMJ 1987; 295:94

(11) Van Griensven GJP, de Vroome EMM, Tielman RAP, Coutinho RA. Failure rate of condoms during anogenital intercourse in homosexual men. Genitourin Med 1988; 64: 344-6

(12) Benton KWK, Jolley D, Smith AMA, Gerofi J, Moodie R, An actual use comparison of condoms meeting Australian and Swiss standards: results of a double-blind crossover trial. Int J STD AIDS 1997; 8:427-31

(13) Golombok S, Sheldon J, Evaluation of a thicker condom for use as a prophylactic against HIV transmission. AIDS Educ Prev 1994; 6:454-8

(14) Benton KWK, Jolley D, Smith AMA, Gerofi J, Moodie R, An actual use comparison of condoms meeting Australian and Swiss standards: results of a double-blind crossover trial. Int J STD AIDS 1997; 8:427-31

(15) Hickson F, Reid D, Weatherburn P, Stephens M & Brown D, Time for more - findings from the National Gay Men's Sex Survey 2000, London, Sigma Research

(16) Preliminary data from the 2001 Health in Men survey (telephone conversation with Ford Hickson of Sigma Research)

(17) Golombok S, Harding R, Sheldon J, An evaluation of a thicker versus a standard condom with gay men. AIDS 2001 15:245-250

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Condom Thickness

The long-held consensus has ended among UK HIV health promoters that 'extra strong' condoms should be recommended to gay men for anal intercourse. Some agencies now advise that there is no need to use 'extra strong' condoms. Others say 'standard' strength condoms are acceptable if 'extra strong' ones are not going to be used.⁽¹⁾

Many organisations are reassessing their position on condom thickness. This reappraisal has been triggered by research published in 2001 by Golombok, Harding and Sheldon of City University in London⁽²⁾, in which efficacy of both 'extra strong' and 'standard' strength condoms during anal intercourse between men was investigated. No difference was observed in condom failure rates between the two types of condom.

This briefing paper is for those involved with sexual health promotion with gay and other homosexually active men. It will not attempt to decide the issue for the reader but instead will examine:

- how condom thickness is measured and tested
- the historical background to the issue of condom thickness
- research evidence on condom thickness
- considerations around changing policy regarding condom thickness

Terms used

In this briefing paper thicker condoms are referred to as 'extra strong', thinner condoms as 'standard'. Although 'strong' and 'extra strong' might imply that other condoms are weaker and therefore more likely to fail during sex, these terms are employed because;

- gay men and health promoters have traditionally used them to describe condom types.
- manufacturers use these terms when marketing condoms.

How condom thickness is measured and tested

Research shows that, used properly and consistently, condoms are highly effective at preventing transmission of many STIs, including HIV. Condom quality has improved over the last 30 years, with modern condoms safer than ever before. Condom thickness is measured either in millimetres or microns, with, confusingly for consumers, both - or rather, either - used to describe thickness by retailers and manufacturers. A micron is equivalent to one-millionth of a metre (or one thousandth of a millimetre).

'Standard' condom thickness is around 0.07mm or 70 microns. The thinnest condoms available of reliable quality are around 0.04mm. Most manufacturers now produce 'standard' condoms with an average thickness of about 0.07mm. To be called such, 'extra strong' brands must be around 0.09 mm to conform to European standards. The first world-wide condom quality control standard was introduced in 1990 (International Condom Standard ISO 4074) - a European revision of this was agreed on in 1996 (EN 600).

The USA Condom Standard and World Health Organisation condom specification prescribe condom thickness but neither the global standard ISO 4074 nor European EN 600 prescribe thickness as such. EN 600 prescribes a breaking force for 'extra strong' brands that is much higher than for 'standard' condoms, which in effect necessitates rubber around 0.09mm thick.

However tested in the laboratory, 'extra strong' condoms are usually 'stronger' than their 'standard' equivalents in so far as they withstand greater pressure. This testing of condom integrity under laboratory conditions was developed before studies of condom integrity during real sex acts were conducted. Several studies, including Gerofi et al⁽³⁾, have concluded tensile properties as measured in manufacturers' tests are unrelated to condom breakage during actual intercourse. In fact, in the absence of a proven link between tensile strength and condom breakage in vivo, both the WHO specification and ISO 4074 no longer prescribe tensile strength measurements. However, the current European standard prescribes a minimum tensile breaking force (of 100 newtons) for 'extra strong' condoms.

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Condom Testing

When testing condoms samples from each batch are subjected by manufacturers to quality control tests under laboratory conditions. A small proportion are allowed to fail but a batch is rejected if this number goes above the international standard's agreed benchmark.

Manufacturers can use four tests to ascertain condom integrity:

1. Electrical screening

Two electrical screening methods are used; a 'wet' test measures electrical conductivity between the inside and outside of the condom – those with low resistance are rejected. A 'dry' test uses a voltage ten times greater to detect holes or very thin areas.

2. Water tests

Condoms are filled with water, suspended for 3 minutes, inspected for visible leakage before being rolled by hand on absorbent paper to show invisible leakage. However, filling and suspending with water does not reproduce the force a condom is subjected to during intercourse. Also, rubber thickness varies in a condom, being thicker at the closed end than towards the open end's rim, which water tests are less able to gauge.

3. Tensile strength tests

This involves stretching, to over seven times its initial girth, a piece of rubber cut from midway down the condom. Its extension at breaking point and the force used are measured. For regular condoms this is around 39 newtons, for 'extra strong' brands it is 100 newtons, the weight equivalent of 3.9kg and 10kg respectively. Tensile strength can be measured on condoms both before and after being subjected to temperatures of 70°C for several days.

4. Air tests

This involves inflating a condom with 15–18 litres of air (the European standard may prescribe a higher air pressure for 'extra strong' condoms). Air testing is carried out both before and after condoms have been subjected for several days to temperatures of 70°C. Air tests measure the strength of a much larger proportion of the condom than tensile strength tests where only a small piece of the condom's rubber is stretched.

The historical background to the issue of condom thickness

Why are 'extra strong' condoms promoted to gay men in the UK? Condom use among gay men pre-dates the emergence of AIDS; in the US some gay men first began using them to avoid hepatitis. Initially 'standard' condoms were promoted to prevent HIV transmission, just as they had been to prevent hepatitis infection. To this day 'standard' condoms remain the only type promoted in North America and Australasia. In many parts of Europe (at least in those where there was an alternative to 'standard' condoms) a consensus against the thinner condom type formed. The message of many European organisations was not only that 'extra strong' condoms were more reliable during anal sex but that 'standard' condoms should not be used due to a perceived increased likelihood of failure.

The promotion of 'extra strong' condoms was not a UK phenomenon. Today a glance at Internet sites and health promotion material reveals them being promoted by agencies in, amongst others, Italy, Spain, Germany, Austria and the Netherlands.⁽⁴⁾ In Dutch-speaking Belgium one agency, Antwerp's AIDS Team, acknowledges in its safer sex material that it has changed its message, with 'standard' condoms now recommended as suitable. This change occurred in response to the research of Golombok, Harding and Sheldon mentioned earlier.

Why different stances prevail in different parts of the world remains the subject of speculation; few documents exist revealing the reasons behind the early decisions for or against the two condom thicknesses. It is, however, curious that in the highly litigious US, agencies have been happy to recommend condoms viewed in some other countries as less reliable. To better understand the promotion of 'extra strong' condoms it may be useful to consider the conjecture around the reasons for it. The points that follow are speculative.

Speculation may, however, help shed some light on why the preference for 'extra strong' condoms remained unchallenged in the UK for so many years.

■ **In an attempt to reduce deaths were 'extra strong' condoms promoted as a compromise between those early 'safer sex' advocates who wished to recommend abstinence from anal sex and those favouring anal sex with condoms?**⁽⁵⁾

■ **Did the documented rates of failure of 'standard' condoms to prevent pregnancy and STI transmission during real life heterosexual intercourse lead to the more cautious decision to promote 'extra strong' condoms?**⁽⁶⁾

■ **Were 'extra strong' promoted due to the commonly held perception that anal sex, especially between men, is 'rougher' and that condoms come under greater stress during anal intercourse?**⁽⁷⁾

■ **Or were manufacturers' tests showing 'extra strong' condoms to be just that (at least under laboratory conditions) seen as all the evidence needed at the time for those making the decision?**

Certainly the decision of condom manufacturers to label their product (including thicker brands) 'for vaginal intercourse only' added to the notion (one unsupported by evidence) that when condoms are used for anal sex, there is greater risk of failure.

Two things are clear. Firstly, for many years health promoters in various countries knew that their peers elsewhere promoted a different strength of condom. Secondly, their reasons for not re-examining their position have to a large degree rested on a willingness to accept assumptions on condom efficacy rather than robust evidence.

Research evidence about condom thickness

The crux of the debate remains; 'is there a difference in failure rates between 'extra strong' and 'standard' latex condoms during anal intercourse?' There are surprisingly few reliable studies on condom use for anal sex (whether heterosexual or homosexual) and even fewer comparing 'standard' brands with 'extra strong' ones.⁽⁸⁾ In their review of condom thickness research in 2000⁽⁹⁾ Richters and Kippax point out how studies tend to be limited by perceived shortcomings in their methodology; such as small samples or only testing one brand of each type of condom. Bearing in mind these limitations, in such studies condom failure is generally somewhat higher during anal sex than vaginal sex. However, the difference is less than failure rates seen between different groups of men e.g. between inexperienced and experienced users. As shall be seen, many other factors appear to influence failure rates more than condom thickness does.

■ **In a small Dutch study⁽¹⁰⁾ of anal sex among 17 gay couples in the 1980s there were slightly higher (but not statistically significant) failure rates for 'standard' condoms. The men found using the thicker condoms less acceptable, but these were not commercially available 'extra strong' brands but an even thicker product created for the trial.**

■ **Another 1980s Dutch study of 112 men⁽¹¹⁾ found a lower failure rate among men choosing 'extra strong' condoms but the authors recognised that maybe more cautious men chose thicker condoms and such men might also have experienced lower failure had they used thinner ones.**

■ **In the 1990s a double-blind crossover trial⁽¹²⁾ showed 'extra strong' condoms less likely to break during anal sex but a little more likely (but non-significantly) to break during oral or vaginal sex.**

■ **A study published in 1994⁽¹³⁾ concluded, in the absence of strong proof, 'a thicker condom offers greater protection' despite only testing thicker condoms on the grounds it was unethical to also give men 'standard' condoms ' which may have a high breakage rate'. Interestingly, one of its authors (Golombok) was involved in the 2001 study showing no difference in breakage rates between condom strengths.**

■ **A small 1997 study⁽¹⁴⁾ showed a five times greater difference in failure rate between two 'standard' condoms, a thinner Australian brand and a stronger Swiss one.**

No significant difference in condom failure rates is noted among gay men when comparing the UK to a country where 'standard' condoms are used. The 2000 National Gay Men's Sex Survey⁽¹⁵⁾ in the UK (a country where 'extra strong' condoms are promoted) records 13.3% of men reporting failure during insertive anal intercourse. The 2001 Men in Health survey in Australia (where 'standard' condoms are promoted) records 12.7% of Australian men (insertive or receptive) reporting failure.⁽¹⁶⁾

The most recent research, the Golombok, Harding and Sheldon study⁽¹⁷⁾, is a large double-blind, randomised, controlled trial of 283 gay couples in which the performance of 1,269 'standard' and 1,278 'extra strong' condoms was recorded. Each couple (who were not previously using condoms) received lubricant and either nine 'standard' or nine 'extra strong' condoms, with identifying packaging removed. Many see this study as particularly robust in its methodology compared to earlier ones. The study found that once inappropriate use was removed there was no significant difference in visible condom failure between one brand of 'standard' condom (Durex Gossamer) compared to an 'extra strong' brand (Durex Ultra Strong) – a 2.5% failure rate for 'extra strong' compared to 2.3% for 'standard'. Its authors concluded:

'gay men no longer need to be encouraged to buy, or be provided with, extra strong condoms, as failure rates did not differ between the two different types of condoms'.

Inexperience with condoms has frequently been identified in systematic reviews of research as the key factor in condom failure, with individual contributory factors identified as:

■ **lack of or insufficient lubrication on both penis and anus**

■ **use of oil-based and not water-based lubrication**

■ **use of saliva as lubrication**

■ **unrolling condoms before putting them on**

■ **longer duration of intercourse**

■ **longer penis length**

■ **and condoms too small or too big for the wearer.**

Golombok, Harding and Sheldon found condom thickness not a contributing factor. Research suggests addressing any of the above factors would probably reduce failure rates more than changing condom type (even if any difference were to be identified by further research).