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Sex Toys



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Synonyms

[Adult novelty products](#); [Adult products](#); [Adult toys](#); [Intimacy products](#); [Love toys](#); [Marital aids](#); [Personal pleasure objects](#); [Pleasure products](#); [Self-pleasure products](#); [Sensual adult lifestyle products](#); [Sensual lifestyle products](#); [Sexual aids](#); [Sexual devices](#); [Sexual enhancement products](#); [Sexual merchandise](#); [Sexual wellness products](#)

Definition

Sex toys are material objects selected, created, and used to generate or enhance sexual arousal and pleasure in both solo and partnered sex (Döring & Pöschl, 2018). They can be homemade, but most are bought. Sex toys are made of different materials, such as plastic, silicone, glass, leather, and steel, and directly used on or in the body, particularly around erogenous zones. Some sex toys are low-tech, while others are high-tech and come equipped with Internet connection, mobile app, camera, motors, and so on to provide interactive functions and the sensations of vibration, pulsation, warmth, pressure, suction, or thrust. Sex toys

can take a variety of forms and shapes and are related to different sexual lifestyles and identities. Within the BDSM community, for example, common use is made of handcuffs and whips, whereas in queer communities, strap-on dildos are popular, and in heterosexual interactions vibrators are the most frequently used. Some sex toys look like human body parts (e.g., a vibrator/dildo in the form of the male human genitals; a masturbator in the form of the female human genitals, foot, or mouth). Others have nonhuman forms (e.g., a vibrator/dildo in the form of a horse's genitals, or a dolphin, rabbit, or banana).

Introduction

Archaeological excavations have produced phallos-shaped artifacts seemingly used for sexual stimulation that date back 30,000 years, to the Upper Paleolithic Era. Prehistoric dildo-shaped objects from Ancient China, Egypt, and Greece made of jade, stone, copper, leather, or bones are now exhibited in museums. They were used for religious rituals but also for sexual pleasure. Drawings, paintings, and novels from early times through the Middle Ages to the modern era document the existence and use of sexual aids in many different cultures (Lieberman, 2017a).

The mass production and marketing of sex toys started in the Western world with the so-called sexual revolution of the second half of the

twentieth century. The first print advertisements for vibrators appeared, sex shops and mail order businesses opened, and commercial in-home sex toy parties were organized (Lieberman, 2017a).

At the beginning of the twenty-first century, we are observing a booming sex toy industry that openly markets its products on the Internet (Döring, 2009). Leading online department stores such as Amazon.com and Alibaba.com offer hundreds of thousands of sex toys. Product descriptions, product photos, and customer reviews are easily accessible online, with no age restrictions. Offline supermarkets and drugstores have also started selling sexual products such as condoms, lubricants, penis rings, and vibrators. Never before have sex toys been so culturally visible, easily accessible, and diversified. Online sex shops cater to diverse target groups, be it Christians, older people, or women. The Google search engine reports more than 150 million web entries for “sex toys,” and the video platform YouTube offers millions of sex toy videos. Women, mostly, have created dozens of sex toy weblogs with detailed customer reviews and buying tips (e.g., www.heyepiphora.com).

In light of the popularization and normalization of sex toys within the last decades, research is lagging behind. While literally thousands of academic studies have been published on pornography, fewer than 100 studies of sex toys are to be found, indicating that material sexual devices are largely under-researched (Döring & Pöschl, 2018).

Research Questions

To better understand the cultural meanings and impacts of sex toys, three clusters of research questions need to be answered.

1. *Producers and products*: Who produces which types of sex toys? What determines product characteristics, and production and marketing processes?
2. *Users and usage patterns*: Who buys and uses which types of sex toys? What determines solo-sexual and partnered-sexual usage

patterns, as well as the clinical applications of sex toys?

3. *Positive and negative outcomes*: What type of effects do different sex toy usage patterns have on different users, their sexual partners, and society at large? What determines the type and intensity of negative and positive outcomes?

Research Methods

To answer these research questions, different research designs and methods of data collection are employed: Qualitative interviews (e.g., Fahs & Swank, 2013) and quantitative surveys (e.g., Döring & Poeschl, 2020; Herbenick et al., 2010; Reece et al., 2009; Wood, Crann, Cunningham, Money, & O’Doherty, 2017) are commonly used to explore user demographics, usage patterns, and subjective outcomes. Sometimes, sex toy designers and other sex toy market actors such as sex toy party facilitators are interviewed (e.g., Ronen, 2020) or surveyed (e.g., Herbenick, Reece, & Hollub, 2009) as well. Media content analysis and discourse analysis are common in this field to investigate which messages about sex toys are disseminated by different media. Such media include the industry’s marketing materials (Lieberman, 2016), customer letters, and reviews (e.g., Lieberman, 2017b; Rossolatos, 2016) as well as fictional media such as novels (e.g., “Fifty Shades of Grey”: Heljakka, 2016) or TV series (e.g., “Sex and the City”: Brabaw, 2018; “Grace and Frankie”: Recio, 2018). Some empirical data are also available from participant field research, such as observations made at women’s in-home sex toy parties (McCaughey & French, 2001).

Experimental designs are the exception in this research field. However, some randomized controlled trials have tested the effects of sex toy use in clinical settings, such as therapy for primary anorgasmia in women (Laan, Rellini, & Barnes, 2013) and premature ejaculation in men (Ventus et al., 2020). Nonclinical experiments are also conducted and have examined attitudes toward

sex toy party attendees versus kitchen product party attendees (Marks & Wosick, 2017).

Theoretical Perspectives

To date, no unified theoretical framework has been formulated that can explain all the diverse uses and effects of sex toys. However, in public and academic discourses on sex toys, at least three main theoretical perspectives are prevalent: medicalization, commercialization, and liberation.

Medicalization and Sexual Health Promotion

Before becoming fashionable and stylish consumer products, vibrators were used as sexual aids in medical contexts. In the nineteenth century, “vibrotherapy” was used to cure “hysterical women” as apparent increased female sexual desire was declared a medical problem. Sexual devices are still used in clinical practice when it comes to treating sexual dysfunctions in diverse patient populations, such as erectile dysfunction, premature ejaculation, and anorgasmia (Laan et al., 2013; Rullo et al., 2018). Some sexual devices have been officially approved by the FDA for medical use, and some have been developed in conjunction with stakeholders such as people with disabilities (Morales et al., 2018).

Apart from being used as therapeutic tools, sexual devices are also discussed as preventive measures in the context of public health. As the official WHO definition of sexual health includes sexual pleasure (WHO, 2006), sexual devices that foster the experience of sexual pleasure can be framed as sexual health promoting tools. Today’s sex toy industry offers products to the wider public that aim at the promotion of sexual health (e.g., by instructing and monitoring pelvic floor exercises) and are often labeled “sexual wellness products.” The effectiveness of sex toys in clinical settings is well documented (e.g., Jannini, Limoncin, Ciocca, Buehler, & Krychman, 2012; Laan et al., 2013; Rullo et al., 2018; Ventus et al., 2020) and the accessibility of sexual wellness products to the general population can be regarded as a positive contribution to public sexual health and sexual well-being. However, the

medicalization and “healthicization” of human sexualities have also been criticized for creating new, sanitized standards of healthy sexual normality and generating pressure to master, improve, and constantly work on sexual health (Gupta & Cacchioni, 2013).

Commercialization and Sexual Self-Optimization

Producing, marketing, and buying sex toys is part of a capitalist consumer culture that can be criticized for many different reasons (e.g., environmental pollution, unsafe or even toxic products, exploitative production conditions, commodification of sexuality). Based on this theoretical framework, the producers and production conditions of sex toys must be critically evaluated (Plummer, 2017). Homemade sex toys and fair-trade sex toys from ethical manufactories are alternatives to mass-produced commercial sex toys. However, even ethical products can be problematic as the consumerist notion that people need commercial products to create a satisfying sex life is misleading, according to some sex and couple therapists. Such therapists encourage people to improve their intimate communication, strengthen their mutual trust and emotional bond, share their fantasies, and so on, instead of expecting a quick fix from a commercial sex product.

Another concern related to the commercialization of human sexuality through the mass production and marketing of sex toys is a potentially harmful ideology of constant and compulsory sexual self-optimization and performance improvement. The sex toy industry’s marketing promises of more, faster, better, and multiple orgasms easily put pressure on people to optimize their sexual experiences with the help of sexual products (Attwood & Smith, 2013). This “orgasm imperative” (Frith, 2015) can lead to performance pressure, insecurities, and frustration instead of pleasure. On the other hand, we need to acknowledge that commercialization of human sexuality also implies democratization and de-stigmatization (Attwood, 2006). The sex toy market usually has an inclusive and de-stigmatizing approach. It embraces hedonism, rejects moralism, and caters equally to all sexual tastes and lifestyles

imaginable, including otherwise pathologized or even criminalized preferences and fetishes.

Liberation and Sexual Empowerment

While sex toys are referred to by many different labels, such as “sex devices,” “sensual products,” or “marital aids” (see “[Synonyms](#)” above), the term “sex toy” is most prevalent. This fact points to the idea that sexual devices not only push medicalization and commercialization but also playfulness, creativity, and sexual exploration. Using sex toys can help people to explore their own and their partners’ sexual reactions and fantasies and might even help them to go beyond traditional gender roles and sexual scripts: Women using strap-on dildos with their male partners, for example, reverse traditional sexual gender roles while women using vibrators to incorporate more direct clitoral stimulation into their partnered sex can overcome the “coital imperative” (Stiritz & Appleton, 2011).

Several queer and feminist researchers and activists have endorsed sex toys for their potential for sexual empowerment and liberation, particularly of women. When sex toys help women to enjoy solo sex and reach orgasm more easily, this can improve their sexual independence, positive body image, and self-love. Some explicitly feminist sex shops, sex toy review blogs, and in-home sex toy party organizers stress the link between sex-positive feminism and sex toys (Huff, 2018). While many feminist and queer perspectives acknowledge sex toys as empowering and transformative sensual devices and political tools, others reject them because they often re-affirm a heteronormative and phallogocentric sexual order (e.g., through phallic toys like dildos or vibrators that are used for penetrative sex). The question of whether phallus-shaped dildos are liberating or oppressive for women has caused the most dispute in lesbian contexts, dubbed the “lesbian dildo debates” or even “lesbian dildo wars” in the literature (Findlay, 1992; Madraga, Nielsen, & Morrison, 2018; Minge & Zimmerman, 2009). Last but not least, the consumerist image of the seemingly sexually empowered female sex toy user is also criticized as a post-feminist illusion. According to critics, in light of ubiquitous gender inequalities

and sexual violence, the sex toy market’s ideology that using a vibrator equals sexual liberation distracts from more urgent sexual and gender policy issues.

Future Theory Development

All three theoretical perspectives raise relevant points. Their assumptions and predictions need to be investigated systematically and empirically. Most likely, the uses and effects of sex toys are best understood by integrating the different theoretical perspectives instead of playing them off against each other. It should also be noted that each perspective points to both negative and positive outcomes at individual and wider social levels. Sex toys provide new options for sexual exploration, experimentation, and health promotion while at the same time they can re-affirm traditional gender roles and sexual scripts or bring about problematic new norms and ideologies. Ultimately, it seems that sex toys per se are neither good nor bad, neither liberating nor oppressive, and that a binarized debate needs to be overcome by a more nuanced analysis that contextualizes sex toy use and acknowledges ambivalent experiences and meanings (Madraga et al., 2018; Mayr, 2020).

Empirical Results on Sex Toy Producers and Products

As sex toys are under-researched, only limited empirical evidence is available to answer research questions regarding sex toy producers and products.

Homemade Sex Toys

While most sex toys used today are commercial sex products, many people are still using household items, fruits, plants, or self-made devices for sexual stimulation (Kwakye, 2020). Reasons for using homemade toys might be lack of money or opportunity to buy commercial sex products (e.g., in adolescent populations) or need for discretion (e.g., in religious families where the possession of explicit sex toys could be considered a sin). On the popular video platform YouTube, many videos

with titles such as “DIY sex toys” or “homemade sex toys” are available, providing tutorials on how to create a masturbator with a household glove, or use a hairbrush handle as a dildo or an electric toothbrush as a vibrator. In the broader context of consumerism, the practice of creating homemade sex toys could be linked in future research to movements such as ethical and sustainable consumption and minimalism.

The Mainstream Sex Toy Market

The mainstream sex toy market provides a broad spectrum of commercial sex products such as dildos, vibrators, anal beads, penis rings, masturbators, and BDSM toys. No established classification and labeling system for sex toys has to date been developed in the academic literature and researchers often adopt the terminologies in use among sex toy producers and sellers.

The empirical analysis of the sex toy market has revealed a shift in cultural meaning toward normalization. To overcome the stigma that sex toys and sex shops are “dirty,” “filthy,” “perverse,” and “male-oriented,” modern sex toy producers and marketers make sure to sell their sex toys as clean, chic, fashionable, and feminized lifestyle products (Attwood, 2005; Morley, 2017; Piha, Hurmerinta, Sandberg, & Järvinen, 2018). Many of the big sex toy companies and retailers, such as Ann Summers, Babeland, Come as you are, God for her, Good Vibrations, Lelo, and WeVibe, are women-led and/or women-oriented in presenting themselves as tasteful erotic boutiques (Crewe & Martin, 2017). Some institutions on the sex toy market, such as sex shops and sex toy party organizers, are explicitly feminist and not only sell sexual products but provide a corresponding sex-positive and empowering sexual education (Lynn, 2015). Research shows that the current sex toy boom is closely linked to the online marketing of sex toys (Daneback, Mansson, & Ross, 2011; Döring, 2009; Döring & Poeschl, 2020).

Small Businesses and Sex Tech Startups

In addition to the big sex toy companies, small businesses and sex tech startups are also active in the market (Trajkovska, 2019). Sex toy inventors

are collecting investment money from the internet crowd on crowdfunding platforms such as IndieGoGo.com and Kickstarter.com and bringing innovative sex toys to the market. One example is “Ambrosia Vibe” by Orgasmotronic, a bionic strap-on dildo that vibrates when touched. Product development was supported by an Indiegogo crowdfunding campaign in 2016 that gained a great deal of media attention. Innovative high-tech sex devices are also developed and evaluated in engineering sciences and then sometimes brought to market. An example is the “Kissenger machine,” an interactive device used with a mobile phone that allows remote kissing in real time over distance (Cheok & Zhang, 2020). While high-tech sex toys for remote sex play have been discussed as “teledildonics” for decades, the 2019/2020 COVID pandemic, with its long-term lockdowns and contact bans, has increased demand for and interest in remote sex toys for both casual sex play among isolated singles and sexual intimacy between halves of separated couples (Döring, 2020).

Empirical Results on Sex Toy Users and Usage Patterns

Research shows that sex toy use is widespread in the general population. In Western countries such as the United States, Canada, and Germany, the majority of women and men report sex toy use, with the vibrator being the most popular toy (Döring & Poeschl, 2020; Kwakye, 2020; Reece et al., 2009; Wood et al., 2017). Sex toy use is normalized in heterosexual-identified populations and even more so in bisexual- and homosexual-identified populations (Reece et al., 2010; Rosenberger, Schick, Herbenick, Novak, & Reece, 2012; Schick, Herbenick, Rosenberger, & Reece, 2011). Sexual literacy and positive attitudes toward sex toys are predictors, and sexual functioning and sexual health promotion behaviors are relevant correlates, of sex toy use (Herbenick et al., 2009, 2010). Today, many people use the Internet to obtain information about sex toys and order them discreetly online (Daneback et al., 2011; Döring, Daneback,

Shaughnessy, Grov, & Byers, 2017). The fact that sex toys are also often exchanged as gifts between partners and friends is another sign of their normalization (Döring & Poeschl, 2020).

Sex Toy Use in Solo Sex

Overwhelmingly, studies show that sex toy use is more common in solo than in partnered sexual activities. When used during masturbation, phallic sex toys such as vibrators are used both externally and internally. While women of all sexual identities tend to prefer non-insertive use of vibrators for direct clitoral stimulation (Davis, Blank, Lin, & Bonillas, 1996; Fahs & Swank, 2013), bisexual and gay-identified men tend to prefer internal use of vibrators for anal stimulation (Reece et al., 2010; Rosenberger et al., 2012). Use of vibrators during masturbation by heterosexual-identified men is mostly external, to stimulate the penis and testicles. Detailed descriptions on how other types of sex toys (e.g., masturbators, anal toys, BDSM toys) are used during masturbation are mostly lacking.

Sex Toy Use in Partnered Sex

Use of sex toys during partnered sex is less widespread than masturbatory use, but nonetheless quite common. Sex toy use in partnered sexual activities seems to be more common in established, long-term relationships than in casual sexual encounters. This can be explained by several factors:

- Long-term partners might feel a greater need to overcome routine sex and spice up their sex life with toys.
- Long-term partners might be older and hence in need of more intense stimulation to achieve the orgasm that can be provided by vibrating and pulsating toys.
- Long-term partners might be more comfortable in revealing their sexual needs and more open to negotiate and explore joint sex toy use.

Sex toys are used both during so-called foreplay and during intercourse. For example, during heterosexual intercourse, the female or male

partner might operate a vibrator to add direct clitoral stimulation to the experience and foster female orgasm. Gay and bisexual-identified men report more insertive vibrator use with their sexual partners (Reece et al., 2010).

Strap-on sex is a form of partnered sex play that involves using a strap-on dildo as a sex toy, attached to the body with a harness. People of all genders and sexual identities are using strap-on dildos during partnered sex. However, strap-on sex seems to be more common in queer and kink communities. Sometimes, users experience the strap-on dildo as if it were a sensitive part of their own body (e.g., Bauer, 2018).

Sex Toy Use in Clinical Settings

For patients in rehabilitation (e.g., cancer patients after chemotherapy) as well as for patients with primary sexual dysfunctions (e.g., anorgasmia, premature ejaculation), therapeutic interventions incorporating sex toys can be used. Overall, the clinical uses of sex toys are regarded as evidence-based, ethical, safe, and effective. Several papers encourage clinicians to consider more frequently incorporating sex toys in their therapy plans (Laan et al., 2013; Miranda et al., 2019; Reisman & Gianotten, 2017; Rullo et al., 2018). A clinical case study reports how a male patient in his late 50s who had lost erectile function during his prostate cancer treatment and was frustrated with his sex life finally followed a lesbian friend's advice and adopted a strap-on dildo. Together with his female partner, they explored strap-on sex and both found it even more pleasurable and orgasmic than their prior regular heterosexual intercourse routine had been (Warkentin, Gray, & Wassersug, 2006). The clinical authors discuss the advantages of erectile dysfunction therapy with a strap-on dildo as opposed to common pharmaceutical (e.g., Viagra) or surgical (e.g., inflatable penile implants) therapy. Furthermore, specialized sex toys for distinct patient groups, including people with different disabilities, are being developed and evaluated (Mariano Gomes & Wu, 2018; Morales et al., 2018).

Empirical Results on Positive and Negative Outcomes of Sex Toys

Empirical studies on outcomes of sex toy use cover both positive and negative effects. A national survey among adults in Germany revealed that, overall, heterosexual-identified women and men both reported much more positive ($M = 4.81$; $SD = 1.47$) than negative ($M = 2.41$; $SD = 1.80$) effects of sex toys on their sex life (7-point Likert scale: 1 = “not at all positive/negative,” 7 = “to a high degree positive/negative,” Döring & Poeschl, 2020, p. 891). When it comes to the measurement of specific positive and/or negative effects, studies mostly rely on qualitative and quantitative self-report data.

Positive Outcomes

Positive effects of sex toy use include increased arousal, pleasure, and satisfaction in both solo and partnered sex (Fahs & Swank, 2013; Herbenick et al., 2010; Reece et al., 2009, 2010; Rosenberger et al., 2012; Schick et al., 2011; Waskul & Anklan, 2019). Some women report becoming orgasmic with the help of sex toys in both private and clinical use settings. Others report that using toys spices up their sex life, and feels fun, campy, subversive, and empowering (Fahs & Swank, 2013). For some people with disabilities, sex toys can have the positive effect of assisting solo and partnered sex and lead to sexual empowerment. Transgender people report that sex toys are incorporated as body parts in their sexual interactions and hence provide positive feelings of self-acceptance and identity validation (Bauer, 2018). Sex toy use can also help reduce sexually transmitted infections if safe toy use substitutes riskier non-toy practices such as unprotected sexual intercourse (Satinsky, Rosenberger, Schick, Novak, & Reece, 2011). Clinical sex toy use has positive effects on both men’s and women’s sexual functioning (Laan et al., 2013; Rullo et al., 2018; Ventus et al., 2020).

In sum, all the positive effects discussed in theory (see “[Theoretical Perspectives](#)” above) are backed up by at least some empirical data.

Negative Outcomes

Some sex toy users report negative outcomes such as allergic reactions, discomfort, or pain, and changes in genital sensitivity (Kwakye, 2020). Studies also show that shared use of sex toys is related to the risk of sexually transmitted infections (e.g., HPV, HIV) if toys are not cleaned appropriately and not used in conjunction with condoms or other barrier methods (Anderson, Schick, Herbenick, Dodge, & Fortenberry, 2014; Wood et al., 2017). Further negative outcomes in terms of health risks are sex toy accidents, such as when toys not designed for anal play are used and then retained in the anus or rectum. This condition sometimes demands invasive treatments such as surgery and stoma (Dahlberg et al., 2019). Further studies point to negative emotional effects of sex toy use, such as shame and embarrassment, religious and moral concerns and guilt, feelings of dependency or addiction, and irritation about sexualizing an artificial and impersonal object (Waskul & Anklan, 2019). Some queer and lesbian-identified women feel troubled about using masculine-connnotated phallic toys (Fahs & Swank, 2013). Some heterosexual-identified women report pressure or even coercion in the course of partnered sex toy use (Fahs & Swank, 2013).

Overall, empirical studies demonstrate negative effects, but mostly stress that sex toy users experience positive effects as stronger and more predominant. No thorough investigation has to date been undertaken of the theoretical assumptions that sex toy use will impose an “orgasm imperative,” increase performance pressure, and trouble users with new norms of sexual self-optimization.

Conclusion

Sex toys are widely used among the general population in both solo and partnered sexual activities. While many sex markets are male-dominated, the sex toy market is female-dominated, with a variety of women-led and/or women-oriented companies and products, a large percentage of female consumers, and a broad feminist and

queer endorsement of sex toy usage. Even though sex toys are still criminalized in some countries and related with shame, guilt, and taboo, they can be considered mostly normalized in the Western world. While the cultural meanings and individual practices of sex toy use are controversial and ambivalent in some respects and negative outcomes, sometimes severe, are possible (e.g., allergies, STI transmissions, injuries to the intestines), most sex toy users report overwhelmingly positive effects in terms of improved sexual pleasure and well-being. Future research should include innovative, advanced, and niche products such as so-called sex machines, sex toy torsos, remote-controlled sex toys for long-distance relationships, and bionic and other high-tech sex toys. To advance the research field it is also necessary to improve both the theoretical conceptualization and operationalization of key concepts. Validated self-report measures of sex toy selection, use, and effects are mostly lacking.

Cross-References

- ▶ [Erotic Fan Fiction](#)
- ▶ [Feminism](#)
- ▶ [Pornography](#)
- ▶ [Sex and the Internet](#)
- ▶ [Sex Dolls and Sex Robots](#)
- ▶ [Sexuality and Technology](#)

References

- Anderson, T. A., Schick, V., Herbenick, D., Dodge, B., & Fortenberry, J. D. (2014). A study of human papillomavirus on vaginally inserted sex toys, before and after cleaning, among women who have sex with women and men. *Sexually Transmitted Infections*, *90*(7), 529–531. <https://doi.org/10.1136/sextrans-2014-051558>
- Attwood, F. (2005). Fashion and passion: Marketing sex to women. *Sexualities*, *8*(4), 392–406. <https://doi.org/10.1177/1363460705056617>
- Attwood, F. (2006). Sexed up: Theorizing the sexualization of culture. *Sexualities*, *9*(1), 77–94. <https://doi.org/10.1177/1363460706053336>
- Attwood, F., & Smith, C. (2013). Leisure sex: More sex! Better sex! Sex is fucking brilliant! Sex, sex, sex, SEX. In T. Blackshaw (Ed.), *Routledge international handbooks. Routledge handbook of leisure studies* (pp. 325–336). Taylor and Francis, New York.
- Bauer, R. (2018). Cybercocks and Holodicks: Renegotiating the boundaries of material embodiment in Les-bi-trans-queer BDSM practices. *Graduate Journal of Social Science*, *14*(2), 58–82.
- Brabaw, K. (2018, June 6). What sex and the city taught us about sex toys. *Refinery29*. <https://www.refinery29.com/en-us/sex-and-the-city-rabbit-vibrator-episode>
- Cheok, A. D., & Zhang, E. Y. (2020). Electrical machine for remote kissing; and engineering measurement of its remote communication effects, including modified Turing test. *Journal of Future Robot Life*, *1*(1), 111–134. <https://doi.org/10.3233/FRL-200006>
- Crewe, L., & Martin, A. (2017). Sex and the city: Branding, gender and the commodification of sex consumption in contemporary retailing. *Urban Studies*, *54*(3), 582–599. <https://doi.org/10.1177/0042098016659615>
- Dahlberg, M., Nordberg, M., Pieniowski, E., Boström, L., Sandblom, G., & Hallqvist-Everhov, Å. (2019). Retained sex toys: An increasing and possibly preventable medical condition. *International Journal of Colorectal Disease*, *34*(1), 181–183. <https://doi.org/10.1007/s00384-018-3125-4>
- Daneback, K., Mansson, S. A., & Ross, M. W. (2011). Online sex shops: Purchasing sexual merchandise on the internet. *International Journal of Sexual Health*, *23*(2), 102–110. <https://doi.org/10.1080/19317611.2011.565112>
- Davis, C. M., Blank, J., Lin, H.-Y., & Bonillas, C. (1996). Characteristics of vibrator use among women. *Journal of Sex Research*, *33*(4), 313–320. <https://doi.org/10.1080/00224499609551848>
- Döring, N. (2009). The Internet's impact on sexuality: A critical review of 15 years of research. *Computers in Human Behavior*, *25*(5), 1089–1101. <https://doi.org/10.1016/j.chb.2009.04.003>
- Döring, N. (2020). How is the COVID-19 pandemic affecting our sexualities? An overview of the current media narratives and research hypotheses. Commentary. *Archives of Sexual Behavior*. <https://doi.org/10.1007/s10508-020-01790-z>
- Döring, N., Daneback, K., Shaughnessy, K., Grov, C., & Byers, E. S. (2017). Online sexual activity experiences among college students: A four-country comparison. *Archives of Sexual Behavior*, *46*(6), 1641–1652. <https://doi.org/10.1007/s10508-015-0656-4>
- Döring, N., & Poeschl, S. (2020). Experiences with diverse sex toys among German heterosexual adults: Findings from a national online survey. *Journal of Sex Research*, *57*(7), 885–896. <https://doi.org/10.1080/00224499.2019.1578329>
- Döring, N., & Pöschl, S. (2018). Sex toys, sex dolls, sex robots: Our under-researched bed-fellows. *Sexologies*, *27*(3), e51–e55. <https://doi.org/10.1016/j.sexol.2018.05.009>
- Fahs, B., & Swank, E. (2013). Adventures with the “plastic man”: Sex toys, compulsory heterosexuality, and the politics of women's sexual pleasure. *Sexuality &*

- Culture*, 17(4), 666–685. <https://doi.org/10.1007/s12119-013-9167-4>
- Findlay, H. (1992). Freud's "fetishism" and the lesbian dildo debates. *Feminist Studies*, 18(3), 563. <https://doi.org/10.2307/3178083>
- Frith, H. (2015). *Orgasmic bodies: The orgasm in contemporary Western culture*. Palgrave Macmillan, London.
- Gupta, K., & Cacchioni, T. (2013). Sexual improvement as if your health depends on it: An analysis of contemporary sex manuals. *Feminism & Psychology*, 23(4), 442–458. <https://doi.org/10.1177/0959353513498070>
- Heljakka, K. (2016). Fifty shades of toys: Notions of play and things for play in the fifty shades of Grey canon. *Intensities: The Journal of Cult Media*, 8, 59–73. <https://intensitiescultmedia.files.wordpress.com/2016/01/5-heljakka-fifty-shades-of-toys2.pdf>
- Herbenick, D., Reece, M., & Hollub, A. (2009). Inside the ordering room: Characteristics of women's in-home sex toy parties, facilitators and sexual communication. *Sexual Health*, 6(4), 318–327. <https://doi.org/10.1071/SH08086>
- Herbenick, D., Reece, M., Sanders, S. A., Dodge, B., Ghassemi, A., & Fortenberry, J. D. (2010). Women's vibrator use in sexual partnerships: Results from a nationally representative survey in the United States. *Journal of Sex & Marital Therapy*, 36(1), 49–65. <https://doi.org/10.1080/00926230903375677>
- Huff, A. (2018). Liberation and pleasure: Feminist sex shops and the politics of consumption. *Women's Studies*, 47(4), 427–446. <https://doi.org/10.1080/00497878.2018.1454923>
- Jannini, E. A., Limoncin, E., Ciocca, G., Buehler, S., & Krychman, M. (2012). Ethical aspects of sexual medicine. Internet, vibrators, and other sex aids: Toys or therapeutic instruments? *The Journal of Sexual Medicine*, 9(12), 2994–3001. <https://doi.org/10.1111/jsm.12018>
- Kwakye, A. S. (2020). Using sex toys and the assimilation of tools into bodies: Can sex enhancements incorporate tools into human sexuality? *Sexuality & Culture*, 7(3), 1074. <https://doi.org/10.1007/s12119-020-09733-5>
- Laan, E., Rellini, A. H., & Barnes, T. (2013). Standard operating procedures for female orgasmic disorder: Consensus of the International Society for Sexual Medicine. *The Journal of Sexual Medicine*, 10(1), 74–82. <https://doi.org/10.1111/j.1743-6109.2012.02880.x>
- Lieberman, H. (2016). Selling sex toys: Marketing and the meaning of vibrators in early twentieth-century America. *Enterprise & Society*, 17(2), 393–433. <https://doi.org/10.1017/eso.2015.97>
- Lieberman, H. (2017a). Intimate transactions: Sex toys and the sexual discourse of second-wave feminism. *Sexuality & Culture*, 21(1), 96–120. <https://doi.org/10.1007/s12119-016-9383-9>
- Lieberman, H. (2017b). *Buzz: The stimulating history of the sex toy*. Pegasus Books, New York.
- Lynn, L. (2015). *Vibrator nation: How feminist sex-toy stores changed the business of pleasure*. Duke University Press, Duke.
- Madraga, M., Nielsen, E.-J., & Morrison, T. G. (2018). 'You do you' feminism: Lesbian, bisexual, and Queer women's perspectives on the Dildo. *Sexuality & Culture*, 22(3), 1000–1018. <https://doi.org/10.1007/s12119-018-9507-5>
- Mariano Gomes, L., & Wu, R. (2018). User evaluation of the Neurodildo: A mind-controlled sex toy for people with disabilities and an exploration of its applications to sex robots. *Robotics*, 7(3), 46. <https://doi.org/10.3390/robotics7030046>
- Marks, M. J., & Wosick, K. (2017). Exploring college men's and women's attitudes about women's sexuality and pleasure via their perceptions of female novelty party attendees. *Sex Roles*, 77(7–8), 550–561. <https://doi.org/10.1007/s11199-017-0737-z>
- Mayr, C. (2020). Symbolic vibration: A meaning-based framework for the study of vibrator consumption. *Journal of Consumer Culture*, 3(1), 146954052092623. <https://doi.org/10.1177/1469540520926233>
- McCaughy, M., & French, C. (2001). Women's sex-toy parties: Technology, orgasm, and commodification. *Sexuality & Culture*, 5(3), 77–96. <https://doi.org/10.1007/s12119-001-1031-2>
- Minge, J., & Zimmerman, A. L. (2009). Power, pleasure, and play. *Qualitative Inquiry*, 15(2), 329–349. <https://doi.org/10.1177/1077800408326848>
- Miranda, E. P., Taniguchi, H., Cao, D. L., Hald, G. M., Jannini, E. A., & Mulhall, J. P. (2019). Application of sex aids in men with sexual dysfunction: A review. *The Journal of Sexual Medicine*, 16(6), 767–780. <https://doi.org/10.1016/j.jsxm.2019.03.265>
- Morales, E., Gauthier, V., Edwards, G., Courtois, F., Lamontagne, A., & Guérette, A. (2018). Co-designing sex toys for adults with motor disabilities. *Sexuality and Disability*, 36(1), 47–68. <https://doi.org/10.1007/s11195-017-9506-8>
- Morley, M. (2017). *Sex sells, but how is design selling it to women?* AIGA eye on design. <https://eyeondesign.aiga.org/sex-sells-but-how-is-design-selling-it-to-women/>
- Piha, S., Hurmerinta, L., Sandberg, B., & Järvinen, E. (2018). From filthy to healthy and beyond: Finding the boundaries of taboo destruction in sex toy buying. *Journal of Marketing Management*, 34(13–14), 1078–1104. <https://doi.org/10.1080/0267257X.2018.1496946>
- Plummer, K. (2017). Sexual markets, commodification, and consumption. In G. Ritzer (Ed.), *The Blackwell encyclopedia of sociology* (Vol. 22, pp. 1–4). Wiley. <https://doi.org/10.1002/9781405165518.wbeoss095.pub2>
- Recio, R. P. (2018). Sex toys for women with arthritis: From the Golden girls to grace and Frankie. *HyperCultura*, 7, 1–12. <http://litere.hyperion.ro/hypercultura/wp-content/uploads/2019/04/Palomeque-Rocio.pdf>
- Reece, M., Herbenick, D., Sanders, S. A., Dodge, B., Ghassemi, A., & Fortenberry, J. D. (2009). Prevalence and characteristics of vibrator use by men in the United States. *The Journal of Sexual Medicine*, 6(7), 1867–

1874. <https://doi.org/10.1111/j.1743-6109.2009.01290.x>
- Reece, M., Rosenberger, J. G., Schick, V., Herbenick, D., Dodge, B., & Novak, D. S. (2010). Characteristics of vibrator use by gay and bisexually identified men in the United States. *The Journal of Sexual Medicine*, 7(10), 3467–3476. <https://doi.org/10.1111/j.1743-6109.2010.01873.x>
- Reisman, Y., & Gianotten, W. L. (2017). Sexual tools and toys in Oncosexology. In Y. Reisman & W. L. Gianotten (Eds.), *Cancer, intimacy and sexuality: A practical approach* (pp. 223–233). Springer. https://doi.org/10.1007/978-3-319-43193-2_28
- Ronen, S. (2020). Gendered morality in the sex toy market: Entitlements, reversals, and the irony of heterosexuality. *Sexualities*, 136346072091460. <https://doi.org/10.1177/1363460720914601>
- Rosenberger, J. G., Schick, V., Herbenick, D., Novak, D. S., & Reece, M. (2012). Sex toy use by gay and bisexual men in the United States. *Archives of Sexual Behavior*, 41(2), 449–458. <https://doi.org/10.1007/s10508-010-9716-y>
- Rossolatos, G. (2016). Good vibrations: Charting the dominant and emergent discursive regimes of sex toys. *The Qualitative Report*, 21(8), 1475–1494. <https://nsuworks.nova.edu/tqr/vol21/iss8/11>
- Rullo, J. E., Lorenz, T., Ziegelmann, M. J., Mehofer, L., Herbenick, D., & Faubion, S. S. (2018). Genital vibration for sexual function and enhancement: Best practice recommendations for choosing and safely using a vibrator. *Sexual and Relationship Therapy*, 33(3), 275–285. <https://doi.org/10.1080/14681994.2017.1419558>
- Satinsky, S., Rosenberger, J. G., Schick, V., Novak, D. S., & Reece, M. (2011). USA study of sex toy use by HIV-positive men who have sex with other men: Implications for sexual health. *International Journal of STD & AIDS*, 22(8), 442–448. <https://doi.org/10.1258/ijasa.2011.010488>
- Schick, V., Herbenick, D., Rosenberger, J. G., & Reece, M. (2011). Prevalence and characteristics of vibrator use among women who have sex with women. *The Journal of Sexual Medicine*, 8(12), 3306–3315. <https://doi.org/10.1111/j.1743-6109.2011.02503.x>
- Stiritz, S. E., & Appleton, S. F. (2011). Sex therapy in the age of Viagra: “Money Can’t buy me love”. *Journal of Law & Policy*, 35, 363–421.
- Trajkowska, B. (2019, July 12). 10 sex tech startups to look out for in 2019 and beyond. *EU-Startups*. <https://www.eu-startups.com/2019/07/10-sex-tech-startups-to-look-out-for-in-2019-and-beyond/>
- Ventus, D., Gunst, A., Arver, S., Dhejne, C., Öberg, K. G., Zamore-Söderström, E., et al. (2020). Vibrator-assisted start-stop exercises improve premature ejaculation symptoms: A randomized controlled trial. *Archives of Sexual Behavior*, 49(5), 1559–1573. <https://doi.org/10.1007/s10508-019-01520-0>
- Warkentin, K. M., Gray, R. E., & Wassersug, R. J. (2006). Restoration of satisfying sex for a castrated cancer patient with complete impotence: A case study. *Journal of Sex & Marital Therapy*, 32(5), 389–399. <https://doi.org/10.1080/00926230600835346>
- Waskul, D., & Anklan, M. (2019). “Best invention, second to the dishwasher”: Vibrators and sexual pleasure. *Sexualities*, 23(5–6), 849–875. <https://doi.org/10.1177/1363460719861836>
- WHO. (2006). *Department of Reproductive Health and Research: Report of a technical consultation on sexual health 28–31 January 2002, Geneva*. Geneva.
- Wood, J., Crann, S., Cunningham, S., Money, D., & O’Doherty, K. (2017). A cross-sectional survey of sex toy use, characteristics of sex toy use hygiene behaviours, and vulvovaginal health outcomes in Canada. *The Canadian Journal of Human Sexuality*, 26(3), 196–204. <https://doi.org/10.3138/cjhs.2017-0016>