

# How to choose the right vaginal moisturizer or lubricant for your patient

About 20% of women report having used a vaginal lubrication product in the past 30 days. Knowing what is in these widely used products can help your patients select from the litany of options.

**Jon F. Pennycuff, MD, MSPH, and Cheryl Iglesia, MD**

Vaginal dryness, encompassed in the modern term genitourinary syndrome of menopause (GSM) affects up to 40% of menopausal women and up to 60% of postmenopausal breast cancer survivors.<sup>1,2</sup> Premenopausal women also can have vulvovaginal dryness while breastfeeding (lactational amenorrhea) and while taking low-dose contraceptives.<sup>3</sup> Vaginal moisturizers and lubricants are the first-line treatment options for vaginal dryness, dyspareunia, and GSM.<sup>4,5</sup> In fact, approximately two-thirds of women have reported using a vaginal lubricant in their lifetime.<sup>6</sup> Despite such ubiquitous use, many health care providers and patients have questions about the difference

between vaginal moisturizers and lubricants and how to best choose a product.

## Vaginal moisturizers

Vaginal moisturizers are designed to rehydrate the vaginal epithelium. Much like facial or skin moisturizers, they are intended to be applied regularly, every 2 to 3 days, but may be applied more often depending on the severity of symptoms. Vaginal moisturizers work by increasing the fluid content of the vaginal tissue and by lowering the vaginal pH to mimic that of natural vaginal secretions. Vaginal moisturizers are typically water based and use polymers to hydrate tissues.<sup>7</sup> They change cell morphology but do not change vaginal maturation, indicating that they bring water to the tissue but do not shift the balance between superficial and basal cells and do not increase vaginal epithelial thickness as seen with vaginal estrogen.<sup>8</sup> Vaginal moisturizers also have been found to be a safe alternative to vaginal estrogen therapy and may improve markers of vaginal health, including vaginal moisture, vaginal fluid volume, vaginal elasticity, and premenopausal pH.<sup>9</sup> Commercially available vaginal moisturizers have been shown to be as effective as vaginal estrogens in reducing vaginal symptoms such as itching, irritation, and dyspareunia, but some caution should be taken when interpreting these results as neither vaginal moisturizer nor vaginal estrogen tablet were more effective than placebo in a recent randomized controlled trial.<sup>10,11</sup> Small



Dr. Pennycuff is Fellow, Female Pelvic Medicine and Reconstructive Surgery, Department of Obstetrics and Gynecology, MedStar Health, Washington DC.



Dr. Iglesia is Section Director, Female Pelvic Medicine and Reconstructive Surgery, MedStar Washington Hospital Center; Associate Professor, Obstetrics, Gynecology and Urology, Georgetown University; and Assistant Professor, Department of Obstetrics and Gynecology, Uniformed Services University of the Health and Sciences, Bethesda, MD.

*The authors report no financial relationships relevant to this article.*

doi: 10.12788/obgm.0104

## IN THIS ARTICLE

The effects of additives

[page 46](#)

Available nonhormonal moisturizers

[page 47](#)

Common patient concerns

[page 49](#)

studies on hyaluronic acid have shown efficacy for the treatment of vaginal dryness.<sup>12,13</sup> Hyaluronic acid is commercially available as a vaginal suppository ovule and as a liquid. It may also be obtained from a reliable compounding pharmacy. Vaginal suppository ovules may be a preferable formulation for women who find the liquids messy or cumbersome to apply.

### Lubricants

Lubricants differ from vaginal moisturizers because they are specifically designed to be used during intercourse to provide short-term relief from vaginal dryness. They may be water-, silicone-, mineral oil-, or plant oil-based. The use of water- and silicone-based lubricants is associated with high satisfaction for intercourse as well as masturbation.<sup>14</sup> These products may be particularly beneficial to women whose chief complaint is dyspareunia. In fact, women with dyspareunia report more lubricant use than women without dyspareunia, and the most common reason for lubricant use among these women was to reduce or alleviate pain.<sup>15</sup> Overall, women both with and without dyspareunia have a positive perception regarding lubricant use and prefer sexual intercourse that feels more “wet,” and women in their forties have the most positive perception about lubricant use at the time of intercourse compared with other age groups.<sup>16</sup> Furthermore, the World Health Organization (WHO) recommends that condom-compatible lubricants be used with condoms for menopausal and postmenopausal women.<sup>17</sup> Both water-based and silicone-based lubricants may be used with latex condoms, while oil-based lubricants should be avoided as they can degrade the latex condom. While vaginal moisturizers and lubricants technically differ based on use, patients may use one product for both purposes, and some products are marketed as both a moisturizer and lubricant.

### Providing counsel to patients

Patients often seek advice on how to choose

vaginal moisturizers and lubricants. Understanding the compositions of these products and their scientific evidence is useful when helping patients make informed decisions regarding their pelvic health. Most commercially available lubricants are either water- or silicone- based. In one study comparing these two types of lubricants, water-based lubricants were associated with fewer genital symptoms than silicone-based products.<sup>14</sup> Women may want to use a natural or organic product and may prefer plant-based oils such as coconut oil or olive oil. Patients should be counseled that latex condoms are not compatible with petroleum-, mineral oil- or plant oil-based lubricants.

In our practice, we generally recommend silicone-based lubricants, as they are readily available and compatible with latex condoms and generally require a smaller amount than water-based lubricants. They tend to be more expensive than water-based lubricants. For vaginal moisturizers, we often recommend commercially available formulations that can be purchased at local pharmacies or drug stores. However, a patient may need to try different lubricants and moisturizers in order to find a preferred product. We have included in **TABLES 1 AND 2**<sup>7,17,18</sup> a list of commercially available vaginal moisturizers and lubricants with ingredient list, pH, osmolality, common formulation, and cost when available, which has been compiled from WHO and published research data to help guide patient counseling. (Table 2 is available in the online version of this article at [mdedge.com/obgyn](http://mdedge.com/obgyn).)

### The effects of additives

Water-based moisturizers and lubricants may contain many ingredients, such as glycerols, fragrance, flavors, sweeteners, warming or cooling agents, buffering solutions, parabens and other preservatives, and numbing agents. These substances are added to water-based products to prolong water content, alter viscosity, alter pH, achieve certain sensations, and prevent bacterial contamination.<sup>7</sup> The addition of these substances, however, will alter osmolality and pH balance of

### FAST TRACK

*Silicone-based lubricants are readily available and compatible with latex condoms and generally require a smaller amount than water-based lubricants*

**TABLE 1 Commonly available nonhormonal vaginal moisturizers formulations**

Product	Ingredients	pH <sup>7,18</sup>	Osmolality (mOSm/kg) <sup>7,18</sup>	Formulation and use	Approximate price
RepHresh Vaginal gel	Purified water USP, glycerin, polycarbophil, carbopol 974P, ethylparaben sodium, methylparaben sodium, propylparaben sodium, sodium hydroxide	3.4	1,439 – 1,914	Prefilled applicator used every 3 days	4 applicators (12 days) \$26.49
Replens Long-Lasting Vaginal Moisturizer	Purified water, glycerin, mineral oil, polycarbophil, carbomer homopolymer type B, hydrogenated palm oil glyceride, sorbic acid, sodium hydroxide	2.95 – 3.0	1,177 – 2,011	Prefilled applicator used every 3 days	8 applicators (1-month supply) \$22.49
Luvena	Water, propanediol, PEG-20, xanthan gum, PEG-20M, simmonsia chinensis (Jojoba) seed oil, vaccinium macrocopon (cranberry) fruit extract, lysozyme, lactoferrin, lactoperoxidase, lactic acid, potassium thiocyanate, glycogen, mannose, tocopherol (vitamin E)	Unavailable	Unavailable	Prefilled applicators, use every 3 days as moisturizer or lubricant	6 applicators for \$19.99
Canesintima Intimate Moisturizer	Aqua, glycerin, glyceryl polymethacrylate, capryloyl glycine, sorbitol, acrylates/C10-30 alkyl acrylate crosspolymer, sodium hyaluronate, sodium benzoate, sodium hydroxide, galactoarabinan, butylene glycol/camellia japonica leaf/flower extract, tetrasodium EDTA, P-anisic acid, levulinic acid	5.63	846	Pump bottle	50 mL pump bottle for \$33.49
Ah! Yes Vaginal Moisturizer	Aqua (water), linum usitatissimum (flax) extract, aloe barbadensis leaf juice powder (aloe vera), ceratonia siliqua (locust bean gum), cyamopsis tetragonolobus (guar gum), sodium chloride, xanthan gum, potassium sorbate, citric acid, phenoxyethanol	3.8 – 4.2	260 – 290	Flip top bottle (100 mL); prefilled applicators used every 3 days	\$14.99 for flip top bottle, \$53.89 for 30 applicators

CONTINUED ON PAGE 48

**TABLE 1 Commonly available nonhormonal vaginal moisturizers formulations (continued)**

Product	Ingredients	pH <sup>7,18</sup>	Osmolality (mOsm/kg) <sup>7,18</sup>	Formulation and use	Approximate price
Sylk Natural Intimate Moisturizer	Purified water, kiwifruit plant extract, citrus seed extract, xanthan plant extract, vegetable glycerine, citric acid, potassium sorbate, sodium citrate	4.47	877	3 fluid oz flip top tube	\$22.95
Hyalogyn Vaginal Hydrating Gel	Hydeal-D® (hyaluronic acid derivative), propylene glycol, carbomer (carbopol 974P), methyl p-hydroxybenzoate, propyl p-hydroxybenzoate, sodium hydroxide, purified water	4.88	1,336 – 1,729	30 g tube with 10 applicators (30-day supply)	\$27.00
Revaree Vaginal Moisturizer	2-g vaginal insert contains 5 mg of hyaluronic acid sodium salt in a base consisting of a mixture of semi-synthetic glycerides, which help it retain its shape. (Full ingredient list not listed.)	Unavailable	Unavailable	10 vaginal suppositories (30-day supply)	\$55.00
K-Y Liquibeads Vaginal Moisturizer	Dimethicone, dimethiconol, gelatin, glycerin	Unavailable	Unavailable	6 vaginal ovules	\$22.79

the product, which may be of clinical consequence. Silicone- or oil-based products do not contain water and therefore do not have a pH or an osmolality value.

Hyperosmolar formulations can theoretically injure epithelial tissue. In vitro studies have shown that hyperosmotic vaginal products can induce mild to moderate irritation, while very hyperosmolar formulations can induce severe irritation and tissue damage to vaginal epithelial and cervical cells.<sup>19,20</sup> The WHO recommends that the osmolality of a vaginal product not exceed 380 mOsm/kg, but very few commercially available products meet these criteria so, clinically, the threshold is 1,200 mOsm/kg.<sup>17</sup> It should be noted that most commercially available products exceed the 1,200 mOsm/kg threshold. Vaginal products may be a cause for vaginal irritation and should be considered in the differential diagnosis.

The normal vaginal pH is 3.8–4.5, and vaginal products should be pH balanced to this range. The exact role of pH in these

products remains poorly understood. Nonetheless, products with a pH of 3 or lower are not recommended.<sup>18</sup> Concerns about osmolality and pH remain theoretical, as a study of 12 commercially available lubricants of varying osmolality and pH found no cytotoxic effect in vivo.<sup>18</sup>

Vaginal moisturizers and lubricants contain many inactive ingredients, the most controversial of which are parabens. These substances are used in many cosmetic products as preservatives and are weakly estrogenic. These substances have been found in breast cancer tissue, but their possible role as a carcinogen remains uncertain.<sup>21,22</sup> Nonetheless, the use of paraben-containing products is not recommended for women who have a history of hormonally-driven cancer or who are at high risk for developing cancer.<sup>7</sup> Many lubricants contain glycerols (glycerol, glycerine, and propylene glycol) to alter viscosity or alter the water properties. The WHO recommends limits on the content of glycerols in these products.<sup>17</sup> Glycerols have been

associated with increased risk of bacterial vaginosis (adjusted odds ratio [aOR], 11.75; 95% confidence interval [CI], 1.96–70.27), and can serve as a food source for candida species, possibly increasing risk of yeast infections.<sup>7,23</sup> Additionally, vaginal moisturizers and lubricants may contain preservatives such as chlorhexidine, which can disrupt normal vaginal flora and may cause tissue irritation.<sup>7</sup>

## Common concerns to be aware of

Women using vaginal products may be concerned about adverse effects, such as worsening vaginal irritation or infection. Vaginal moisturizers have not been shown to have increased risk of adverse effects compared with vaginal estrogens.<sup>9,10</sup> In vitro studies have shown that vaginal moisturizers and lubricants inhibit the growth of *Escherichia coli* but may also inhibit *Lactobacillus crispatus*.<sup>24</sup> Clinically, vaginal moisturizers have been shown to improve signs of bacterial vaginosis and have even been used to treat bacterial vaginosis.<sup>25,26</sup> A study of commercially available vaginal lubricants inhibited the growth

of *L. crispatus*, which may predispose to irritation and infection.<sup>27</sup> Nonetheless, the effect of the vaginal products on the vaginal microbiome and vaginal tissue remains poorly studied. Vaginal moisturizers and lubricants, while often helpful for patients, also can potentially cause irritation or predispose to infections. Providers should consider this when evaluating patients for new onset vaginal symptoms after starting vaginal products.

## Bottom line

Vaginal products such as moisturizers and lubricants are often effective treatment options for women suffering from genitourinary syndrome of menopause and may be first-line treatment options, especially for women who may wish to avoid estrogen-containing products. Vaginal moisturizers can be recommended to any women experiencing vaginal irritation due to vaginal dryness while vaginal lubricants should be recommended to sexually active women who experience dyspareunia. Clinicians need to be aware of the formulations of these products and possible side effects in order to appropriately counsel patients. ●

## References

1. Castelo-Branco C, Cancelo MJ, Villero J, et al. Management of postmenopausal vaginal atrophy and atrophic vaginitis. *Maturitas*. 2005;52(suppl 1):S46-S52. doi: 10.1016/j.maturitas.2005.06.014.
2. Crandall C, Peterson L, Ganz PA, et al. Association of breast cancer and its therapy with menopause-related symptoms. *Menopause*. 2004;11:519-530. doi: 10.1097/01.gme.0000117061.40493.ab.
3. Bornstein J, Goldstein AT, Stockdale CK, et al. 2015 ISSVD, ISSWSH, and IPPS Consensus Terminology and Classification of Persistent Vulvar Pain and Vulvodynia. *J Sex Med*. 2016;13:607-612. doi: 10.1016/j.jsxm.2016.02.167.
4. American College of Obstetricians and Gynecologists. ACOG Practice Bulletin No. 141: management of menopausal symptoms. *Obstet Gynecol*. 2014;123:202-216. doi: 10.1097/01.AOG.0000441353.20693.78.
5. Faubion S, Larkin L, Stuenkel C, et al. Management of genitourinary syndrome of menopause in women with or at high risk for breast cancer: consensus recommendation from The North American Menopause Society and the International Society for the Study of Women's Sexual Health. *Menopause*. 2018;25:596-608. doi: 10.1097/GME.0000000000001121.
6. Herbenick D, Reece M, Schick V, et al. Women's use and perceptions of commercial lubricants: prevalence and characteristics in a nationally representative sample of American adults. *J Sex Med*. 2014;11:642-652. doi: 10.1111/jsm.12427.
7. Edwards D, Panay N. Treating vulvovaginal atrophy/genitourinary syndrome of menopause: how important is vaginal lubricant and moisturizer composition? *Climacteric*. 2016;19:151-116. doi: 10.3109/13697137.2015.1124259.
8. Van der Lakk JAWN, de Bie LMT, de Leeuw H, et al. The effect of Replens on vaginal cytology in the treatment of postmenopausal atrophy: cytomorphology versus computerized cytometry. *J Clin Pathol*. 2002;55:446-451. doi: 10.1136/jcp.55.6.446.
9. Nachtigall LE. Comparative study: Replens versus local estrogen in menopausal women. *Fertil Steril*. 1994;61:178-180. doi: 10.1016/s0015-0282(16)56474-7.
10. Bygdeman M, Swahn ML. Replens versus dienoestrol cream in the symptomatic treatment of vaginal atrophy in postmenopausal women. *Maturitas*. 1996;23:259-263. doi: 10.1016/0378-5122(95)00955-8.
11. Mitchell CM, Reed SD, Diem S, et al. Efficacy of vaginal estradiol or vaginal moisturizer vs placebo for treating postmenopausal vulvovaginal symptoms. *JAMA Intern Med*. 2018;178:681-690. doi: 10.1001/jamainternmed.2018.0116.
12. Chen J, Geng L, Song X, et al. Evaluation of the efficacy and safety of hyaluronic acid vaginal gel to ease vaginal dryness: a multicenter, randomized, controlled, open-label, parallel-group, clinical trial. *J Sex Med*. 2013;10:1575-1584. doi: 10.1111/jsm.12125.
13. Jokar A, Davari T, Asadi N, et al. Comparison of the hyaluronic acid vaginal cream and conjugated estrogen used in treatment of vaginal atrophy of menopause women: a randomized controlled clinical trial. *IJCBNM*. 2016;4:69-78.
14. Herbenick D, Reece M, Hensel D, et al. Association of lubricant use with women's sexual pleasure, sexual satisfaction, and genital symptoms: a prospective daily diary study. *J Sex Med*. 2011;8:202-212. doi: 10.1111/j.1743-6109.2010.02067.x.
15. Sutton KS, Boyer SC, Goldfinger C, et al. To lube or not to lube: experiences and perceptions of lubricant use in women

CONTINUED ON PAGE 58

- with and without dyspareunia. *J Sex Med.* 2012;9:240-250. doi: 10.1111/j.1743-6109.2011.02543.x.
16. Jozkowski KN, Herbenick D, Schick V, et al. Women's perceptions about lubricant use and vaginal wetness during sexual activity. *J Sex Med.* 2013;10:484-492. doi: 10.1111/jsm.12022.
  17. World Health Organization. Use and procurement of additional lubricants for male and female condoms: WHO /UNFPA/FHI360 advisory note. 2012. [https://www.who.int/reproductivehealth/publications/rhtis/rhr12\\_33/en/](https://www.who.int/reproductivehealth/publications/rhtis/rhr12_33/en/). Accessed February 13, 2021.
  18. Cunha AR, Machado RM, Palmeira de Oliveira A, et al. Characterization of commercially available vaginal lubricants: a safety perspective. *Pharmaceuticals.* 2014;6:530-542. doi: 10.3390/pharmaceutics6030530.
  19. Adriaens E, Remon JP. Mucosal irritation potential of personal lubricants relates to product osmolality as detected by the slug mucosal irritation assay. *Sex Transm Dis.* 2008;35:512-516. doi: 10.1097/OLQ.0b013e3181644669.
  20. Dezzuti CS, Brown ER, Moncla B, et al. Is wetter better? An evaluation of over-the-counter personal lubricants for safety and anti-HIV activity. *PLoS One.* 2012;7:e48328. doi: 10.1371/journal.pone.0048328.
  21. Harvey PW, Everett DJ. Significance of the detection of esters of p-hydroxybenzoic acid (parabens) in human breast tumours. *J Appl Toxicol.* 2004;24:1-4. doi: 10.1002/jat.957.
  22. Darbre PD, Aljarrah A, Miller WR, et al. Concentrations of parabens in human breast tumours. *J Appl Toxicol.* 2004;24:5-13. doi: 10.1002/jat.958.
  23. Brotman RM, Ravel J, Cone RA, et al. Rapid fluctuation of the vaginal microbiota measured by Gram stain analysis. *Sex Transm Infect.* 2010;86:297-302. doi: 10.1136/sti.2009.040592.
  24. Hung KJ, Hudson P, Bergerat A, et al. Effect of commercial vaginal products on the growth of uropathogenic and commensal vaginal bacteria. *Sci Rep.* 2020;10:7625.
  25. Wu JP, Fielding SL, Fiscell K. The effect of the polycarbophil gel (Replens) on bacterial vaginosis: a pilot study. *Eur J Obstet Gynecol Reprod Biol.* 2007;130:132-136. doi: 10.1016/j.ejogrb.2006.01.007.
  26. Fiorelli A, Molteni B, Milani M. Successful treatment of bacterial vaginosis with a polycarbophil-carbopol acidic vaginal gel: results from a randomized double-blind, placebo controlled trial. *Eur J Obstet Gynecol Reprod Biol.* 2005;120:202-205. doi: 10.1016/j.ejogrb.2004.10.011.
  27. Fashemi B, Delaney ML, Onderdonk AB, et al. Effects of feminine hygiene products on the vaginal mucosal biome. *Microb Ecol Health Dis.* 2013;24. doi: 10.3402/mehd.v24i0.19703.

**TABLE 2 Commonly available nonhormonal lubricants**

Product	Ingredients	pH <sup>7,17,18</sup>	Osmolality (mOSm/kg) <sup>7,17,18</sup>	Formulation and use	Approximate price
K-Y Jelly Water Based Lubricant	Water, glycerin, hydroxyethylcellulose, chlorhexidine, gluconate, gluconolactone, methylparaben, sodium hydroxide	3.5 – 4.49	2,007 – 3,631	2 and 4 oz flip top bottle	\$4.99 – \$7.59
Astroglide Gel Lubricant	Purified water, glycerin, hydroxyethylcellulose, chlorhexidine gluconate, methylparaben, glucono delta lactone, sodium hydroxide	4.38	6,100	4 oz flip top tube	\$6.79
ID Glide Lubricant	Water, glycerin, propylene glycol, cellulose gum, EDTA, carbomer, PEG-90M, tetrahydroxypropyl ethylenediamine, methylparaben, sodium benzoate, potassium sorbate	5.20 <sup>a</sup>	3,200 <sup>a</sup>	Multiple	\$3.49 – 159.99
Wet Original Gel Lubricant	Water (aqua), glycerin, carboxymethylcellulose, pentylene glycol, potassium sorbate	5.9	3,679	5 – 32 oz bottles	\$8.33 – \$39.51
Durex Play Feel Pleasure Gel	Purified water, propylene glycol, hydroxyethylcellulose, benzoic acid, sodium hydroxide	5.48	1,563	50 mL flip top bottle	\$8.99
Good Clean Love Almost Naked Organic Personal Lubricant	Organic aloe barbadensis leaf juice, xanthan gum, agar, lactic acid, potassium sorbate, sodium benzoate, natural flavor	4.73	240	4 oz flip top tube	\$11.99
H2O Sliquid Naturals	Purified water, plant cellulose (from cotton), cyamopsis (guar conditioners), potassium sorbate, citric acid	4.0 – 4.4	Unavailable	4.2 or 8.5 oz bottles	\$12.00 – \$19.00
Pjur Med Natural Glide Personal Lubricant	Aqua (water), glycerin, xanthan gum, benzyl alcohol, sodium benzoate, potassium sorbate, citric acid	4.41	>2,000	100 mL bottle	\$15.95
Pjur Women Nude Lubricant	Aqua (water), propylene glycol, ethoxydiglycol, hydroxypropyl guar hydroxypropyltrimonium chloride, hydroxyethyl cellulose, sodium saccharin, citric acid	4.42	>2,000	100 mL bottle	\$34.99
Ritex Sensitiv Gel	Aqua, glycerin, butylene glycol, hydroxyethylcellulose, sodium lactate, lactic acid	4.04	>2,000	100 mL tube	\$48.99
Simply Slick Personal Lubricating Lotion	Castor oil, purified water, jojoba oil, vegetable glycerin, pectin, Stevia, Optiflo H370VF	6.68	>2,000	2 oz bottle	\$17.77



## Choosing the right vaginal lubricant or moisturizer for your patient

CONTINUED FROM PAGE e1

**TABLE 2 Commonly available nonhormonal lubricants (continued)**

Product	Ingredients	pH <sup>7,17,18</sup>	Osmolality (mOSm/kg) <sup>7,17,18</sup>	Formulation and use	Approximate price
Ah! Yes Water Based Lubricant	Aqua (water), aloe barbadensis leaf juice powder (aloe vera), linum usitatissimum (flax) seed extract, cyamopsis tetragonolobus (guar gum), ceratonia siliqua (locust bean gum), xanthan gum, sodium chloride, potassium sorbate, citric acid, phenoxyethanol	4.08	154	1.7 – 5.1 oz flip top tubes	\$8.49 – \$21.99
Uber Lube	Dimethicone, dimethiconol, cyclomethicone, tocopheryl acetate (vitamin E)	4.6	N/A	50 and 100 mL pump glass bottle	\$18.00 – \$28.00
Swiss Navy Silicone Lubricant	Cyclopentasiloxane, dimethicone, tocopheryl acetate	N/A	N/A	4 oz pump bottle	\$16.49
K-Y True Feel Premium Silicone Lubricant	Dimethicone	N/A	N/A	1.5 oz bottle	\$13.99

<sup>a</sup>Formulation of product changed since laboratory testing so pH and osmolality may be different.