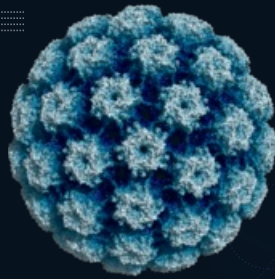


Botanical Support for to HPV and Cervical Dysplasia

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Medicines from the Earth Symposium 2025



Disclosures

None

Objectives

- Understand Human Papilloma Virus (HPV)
 - Incidence and progression
 - High and Low Risk types
 - Testing
 - Prevention
- Recognize the testing for and stages of cervical dysplasia
 - Guidelines for testing
 - Treatment approaches
- Understand botanical / natural support for HR HPV and Cervical Dysplasia

Reflection



- Some of the research presented in this talk was done on HeLa cervical cancer cells (in vitro)
- HeLa cells are the oldest cell lines used in research and were taken without knowledge or consent from **Henrietta Lacks**, a black woman who died of cancer in 1951.
- HeLa cells were used to test the first polio vaccine, have been sent to space, and have been used in many studies testing natural and pharmaceutical treatments for humans and animals.
 - Of note, HPV is specific to humans; animal testing is not possible
- The Common Rule – patients must be informed of and consent to research – established in 1991 in response to this breach and subsequent legal action.

HPV

Human Papilloma Virus

Human Papilloma Virus (HPV)

- Non-enveloped, double stranded, circular DNA virus (Cardoza-Favarato, 2023)
- There are many (182+) types of HPV
- In most people, HPV is cleared by the body's immune system
- Some types are benign, and some types have the potential to stimulate cell changes that can progress to cancer
- 4.5% of *all* cancers are due to HPV infection (Alhamlan et al, 2021)
 - Cervical, anal, vulvovaginal, penile, oropharyngeal
 - Cervical cancer declining due to screening and treatment; oropharyngeal cancer increasing (Lewis, 2021)
- There is no conventional treatment for HPV (Alhamlan et al, 2021)

HPV Prevalence

All types (low and high risk)

- 40% of 15–59-year-olds in the United States
- 41.8% in men* and 38.4% in women
- Disease-associated HPV in 24.2% of males and 19.9% in females
- 32% of 15–24-year-olds
- 25.6% in men* and 40.1% in women (Lewis, 2021)

High risk HPV in women of "all ages"

- 11% of women [26,302 specimens]
- 84% had non-HPV16/18 (Miller et al, 2020)

Bimodal spike of HR HPV in women

- Adolescence (start of sexual activity) and peri/menopause (Gravitt, 2013)
- Unclear if this is related to sexual practices, updated screening, or reactivation of latent virus

HPV Transmission

- Transmitted by **skin-to-skin contact**
- Mucosal HPV transmitted sexually (genital-genital, genital-oral; oral-oral rare)
- Autoinoculation (hand to hand)
- Perinatal – vaginal delivery (Wierzbicka et al, 2023)
- Infections are usually asymptomatic and **often missed**
- Screening for cervical dysplasia and HPV have decreased prevalence
- No guidelines for oral or male genital screening
- Anal screening guidelines just released

HPV Classification by Tissue

Skin (cutaneous) warts / Non-genital

- HPV 1, 2, 3, 4, 10, 27, 28, 55, 57

Mucosal / anogenital – most common STI




- **Low risk HPV**
 - 6, 11, 43, 53, 57, 81, 84
 - Anogenital warts
 - Juvenile and adult recurrent respiratory papillomatosis
- **High risk HPV** [cervix, vagina, anus, oropharyngeal tissue]
 - Types 16, 18, 31, 33, 35, 45, 51, 52, 56, 58, 59, 68

Epidermodysplasia verruciformis

- Rare genetic condition of immunocompromise resulting in inability to fight HPV infection; can develop into Bowen disease and squamous cell carcinoma

(Myers, 2024)

Skin (Cutaneous) Warts

Type	Appearance	Location	HPV types	
Common warts (verruca vulgaris)	Cauliflower-like papules	Fingers, knees, around nails	1, 2, 4, 27, 57	
Plantar warts (verruca plantaris)	Raised, inward growing, can contain black dots	Soles of feet	1, 2, 4, 27, 57, 60, 65	
Flat/plant warts (verruca plana)	Flat topped, skin colored, raised	Face, top of hands/feet, arms, legs	1, 3, 10, 27, 57, 65	

Skin (Cutaneous) Wart Treatment



Ablative therapies:

- Keratolytic therapies cause skin to shed (salicylic acid, alpha-hydroxy acids, urea, and lactic acid) – do not directly impact virus (Hekmatjah et al, 2021)
- Cryotherapy, laser treatment, intralesional, systemic (Hekmatjah et al, 2021)

Botanicals: topical or oral

- Hypericum perforatum (St. John's Wort), Melissa officinalis (lemonbalm), Glycyrrhiza (licorice) (Nelson et al, 2017), Camellia sinensis (tea), Larrea tridentata (chaparral), Curcuma longa (turmeric), Chelidonium majus (greater celandine) latex (Nawrot et al, 2020), Argemone Mexicana (Mexican prickly poppy)
- Topical tea tree, thuja, thyme volatile oils
- Homeopathy: Thuja, Natrum sulf (soft, red, fleshy), Nitric acid (cauliflower-like)
- Banana peel, garlic juice, pineapple juice, potato, duct tape..

- 80% will resolve within 2 years (Hekmatjah et al, 2021)

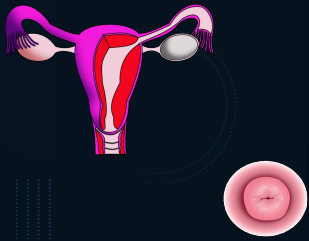
Mucosal HPV Low Risk

Anogenital warts (condyloma acuminata)



- Transmitted by skin contact
- Usually due to HPV 6, 11 - **don't progress to cancer**
- Ablative and immune therapies
 - Podophyllum peltatum (mayapple) rhizome-derived medications (Kore & Anjankar, 2023)
 - Podophyllin resin tincture (Podocon-25), podophyllotoxin lignan - Podofilox 0.5% gel (Condylox, Wartec)
 - Imiquimod, trichloroacetic acid (TCA), cryotherapy, CO₂ laser therapy (Kore & Anjankar, 2023)
- Veregen (sincatechins) ointment 15% - use outside genital tissue only
 - Anti-oxidative activity; growth inhibition in all four HPV-infected tumor cell lines
- Protection from transmission (condoms)
- HPV vaccine protects against types 6 and 11

Mucosal HPV - High Risk



- High risk HPV can affect the cervix, vagina, anus, penis, and oropharyngeal tissue
- Types 16, 18, 31, 33, 35, 39, 45, 51, 52, 56, 58, 59, 66, and 68
 - Most pathogenic: 16, 18
 - Typing is a new practice in conventional medicine - most commonly, only 16 and 18/45 are typed
- Transition zone: columnar cells replaced by squamous cells
- Cervical HPV and transmission is the most researched
 - Assume many of the treatments effective for cervical dysplasia can also be used for HPV in other areas of the body

HPV, Cervical Dysplasia, and Cancer

- HPV has the *potential* to trigger cell changes and dysplasia, but it doesn't *always* do so. **Cervical cancer typically takes years to develop.**
- Dysplasia classified as high grade (HSIL) and low-grade (LSIL); not always a progression
- Spontaneous clearance of the HR HPV occurs in approximately 29% and 41% of cases at 6 and 18 months, respectively (Serrano et al, 2021)
- **Persistent** HPV infection, especially with higher risk types, is most likely to be trigger dysplasia
 - In most people, cleared within 2 years
 - Persistence > 1 year associated with increased prevalence of progression to cervical or oral dysplasia (Wierzbicka et al, 2023)

Prevention – HPV Vaccine



- 9 valent [Gardasil-9] (2014)
 - HPV 6, 11, 16, 18, 31, 33, 45, 52, and 58
 - 2 dose scheduled age (at first vaccination) 9-14, 3 dose schedule age 15-45
 - In people aged 27-45, less clear benefits from vaccination unless MSM, immunocompromised, victims of sexual assault, transgender individuals (Socca et al, 2024)
- SE: pain/swelling at injection site, headaches, pyrexia, fatigue, nausea, syncope
- Adverse effects reported: abdominal pain, syncope, dizziness, loss of consciousness, alopecia, amenorrhea, anemia, dyskinesia, migraine, pallor, and seizures
- CI: hypersensitivity to yeast (vaccine expressed in *Saccharomyces cerevisiae*) or to past dose of HPV vaccine
- Not given in pregnancy (Socca et al, 2024)
- Does not protect against all high-risk HPV types [35, 39, 51, 56, 59, 66, and 68]

HPV Prevention

- Limit sexual partners
- Condoms
- Smoking cessation
 - Tobacco use (current, hx with 5 pack years) is a risk factor for HPV infection and dysplasia/cancer
 - Prevalence of HPV in women who smoke is 40.8%; prevalence in women who do not smoke is 25.2%
 - Prevalence of HPV in men who smoke is 68.2%; prevalence in men who do not smoke is 63.2% (Zou et al, 2023)
- Male circumcision (Shapiro et al, 2023)

Cervical Cancer Screening



Improving lives through the prevention and treatment of anogenital & HPV-related diseases

- Papanicolaou (pap) / Cytology - sample of cells
 - Younger than 21: do not screen
 - Age 21-29: pap only screen every 3 years
 - Age 30-65*:
 - Pap screen every 3 years
 - Primary HPV test [FDA approved – Cobas, Onclarity] every 5 years
 - Co-testing (pap with HR HPV test) every 5 years
- HR HPV types tested by most labs
 - 16 and 18 or 18/45
 - Other HR (not individually typed) 31, 33, 35, 39, 45, 51, 52, 56, 58, 59, 66, 68
- Swabs available [other manufacturers] for HPV testing cervix, vagina, anus, oral mucosa; can test for ALL HPV types



TEST	RESULT
HPV Genotypes 16/18, 45	
HPV Genotype 16	Negative
HPV Genotype 18, 45	Negative

HPV Type-Detect 4.0 by Real Time PCR High Risk Subtypes Only	11/6/22 CervBnd	Detected	Subtypes HPV-45 See explanation below.
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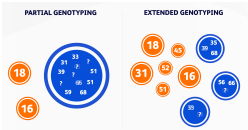
HPV Self Collection

- Was recently (April 2025) incorporated into [screening guidelines](#)
- **Self collected vaginal HPV testing** increases access; can be collected at home on self-collected in office
- High sensitivity and specificity compared to clinical collected samples of cervix
 - HPV testing is more sensitive than cytology (pap)
- Used for asymptomatic patients at average risk
 - NOT for those with abnormal bleeding or discharge, people living with HIV, in utero DES exposure, or surveillance after abnormal pap / colposcopy (CIN2+) or adenocarcinoma
- Guidance covers FDA approved tests only [both identify types 16, 18]
 - BD Onclarity HPV Assay with the Copan 522C.80 swab – also identifies 31, 45, 51, 52
 - Roche cobas assay with the Evalyn brush or Copan 522C.80 swab (Wentzensen et al, 2025)

HPV Typing

- Most labs test for HR HPV strains but don't indicate which types
 - 16, 18, 31, 33, 35, 39, 45, 51, 52, 56, 58, 59, 66, & 68
 - Provider can test for 16 and 18/45 or reflex to this
- Self collection and extended typing

Test	Current Result and Flag	Units
HPV, Other HR Types**	Negative	
HPV 16**	Negative	
HPV 18**	Negative	
This test is intended to detect high-risk HPV types in patient-collected vaginal specimens obtained in a clinical setting. Testing is performed using the cobas® HPV test and specifically identifies HPV16 and HPV18 while concurrently detecting other high-risk HPV types: 31, 33, 35, 39, 45, 51, 52, 56, 58, 59, 66, and 68 without further specific differentiation.		
Additional information** If HPV results warrant additional testing, a separate clinician-collected cervical specimen should be submitted for an appropriate Image-aided Gynecologic Pap profile. See the Labcorp Test Menu for available options.		



Risk Stratification and HPV Type

- Types 16, 18 highest risk, most research
 - Type 16 55% of cervical cancer
 - Type 18 15% of cervical cancer
- Oncoproteins E5, E6, and E7 inhibit host immune response, degrade p53 tumor suppression protein, promote proliferation and inhibit differentiation of cells
- These oncoproteins are more likely to drive cancerous changes when associated with a *persistent infection* (Scarth et al, 2021)

Anal Cancer Screening

Population	Age to start screening
Men having sex with men and/or transwomen with HIV	35
Women with HIV	45
Men having sex with women with HIV	45
Men having sex with men and/or transwomen without HIV	45
Vulvar pre-cancer (HSIL) or cancer	Within 1 year of diagnosis
Solid organ transplant	Within 10 years of transplant
Cervical / vaginal / vulvar pre-cancer (HSIL) or cancer	Shared decision at 45
Perianal warts	Shared decision at 45
Persistent cervical HPV 16 (> 1 year)	Shared decision at 45
Autoimmune conditions/immunosuppression (RA, SLE, IBD, systemic steroid treatments)	Shared decision at 45

International Anal Neoplasia Society's consensus guidelines for anal cancer screening. Int J Cancer. Stier et al, 2024

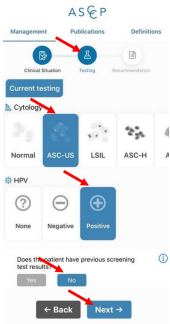
Cervical Cancer Screening: Pap / Cytology results

Normal
Unsatisfactory
Abnormal

- ASC-US: atypical squamous cells of undetermined significance
- LSIL: Low-grade Squamous Intraepithelial Lesion
- ASC-H: Atypical Squamous Cells, Cannot Exclude High-Grade Squamous Intraepithelial Lesion
- AGC: Atypical Glandular Cells
- HSIL: high-grade squamous intraepithelial lesion

Management – Provider Collected

- Guidelines for management of abnormal pap and/or + HPV are becoming more complex and individualized
- Recommend ASCCP App (\$10)
 - [More info](#)
- These algorithms based on typing for 16 and 18/45 only



Management – Provider or Self Collected

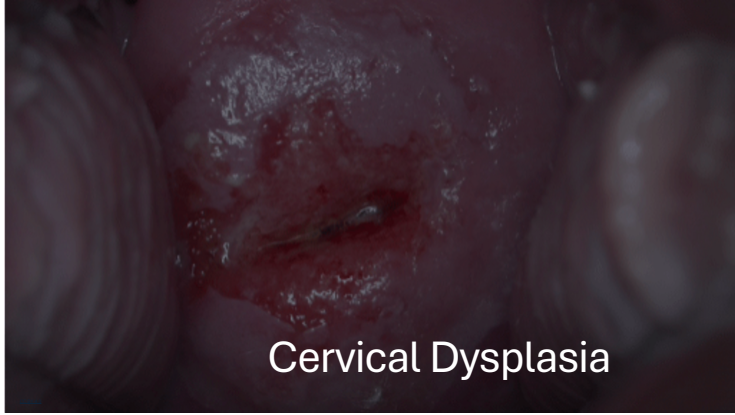
Self-Collected Vaginal Specimens for HPV Testing: Recommendations From the Enduring Consensus Cervical Cancer Screening and Management Guidelines Committee. J Low Genit Tract Dis. 2025

HPV test result	Management of clinician- vs. self-collected collected specimens	Current HPV result	Current dual stain result	Past history	Management
HPV 16/18	Clinician- and self-collected: same management	16 and/or 18	Noncontributory	Noncontributory	Colposcopy with collection of cytology if available
HPV 45, 33/38, 31, 52, 35/39/68, 51 or untyped	Clinician-collected: Laboratory performs reflex dual stain. Self-collected: Patient returns for collection of dual stain.	45, 33/38, 31, 52, 35/39/68, 51 or untyped	Dual stain negative Dual stain positive ¹	Normal ² or colposcopy <CIN2 within past 1 year Noncontributory	Repeat HPV test in 1 year Colposcopy
HPV 59/56/66	Clinician- and self-collected: same management	59/56/66	Noncontributory	Normal ² or colposcopy <CIN2 within past 1 year	Repeat HPV test in 1 year ³
		59/56/66	Noncontributory	HPV+ without colposcopy (i.e., current test is 2 nd consecutive HPV+)	Colposcopy



Dual stain = pap/cytology

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Cervical Dysplasia

Further Workup For Abnormal Pap/HPV

Repeat testing

- Add pap if self-collected
- Add HPV testing with typing if not done
- Repeat in one year

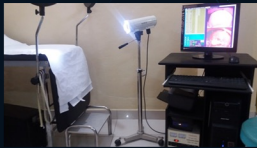
Colposcopy

- Colposcope allows for better visualization of cervix
- Ectocervical sampling (biopsy)
- Endocervical sampling (endocervical curettage, ECC)

Endometrial biopsy

- To workup glandular cells (AGC) or after + ECC

Colposcopy Results



- Must be satisfactory for evaluation
 - Full lesion visible and transformation zone visible
- Normal biopsy
- Abnormal
 - CIN 1 (LSIL)
 - CIN II → p16/Ki67 stain → CIN I (downgraded)
 - CIN III (HSIL) → CIN 2,3 (upgraded)
 - Carcinoma in situ
 - Invasive cervical cancer
- ECC positive: dysplasia in endocervical canal – may be more limited on natural treatment, as this area is difficult to access

Conventional Treatment

- There is no conventional treatment for HR HPV
 - Vaccine as a preventative – most effective if given in younger people
- Loop electrosurgical excision procedure (LEEP)
 - Most common procedure; sometimes done with colposcopy “see and treat”
 - Removal of transformation zone
- Cryotherapy
 - Destruction of transformation zone; biopsy of tissue not possible
- Conization / cold knife cone
- Hysterectomy

Natural Support for HR HPV & Cervical Dysplasia

Treatment goals

- Treat both HPV and cervical dysplasia (if present)
- Treat nutritional deficiencies
- Build the immune system
- Educate the patient on
 - Practices that reduce risk
 - Safe sex practices - consider treating partner(s)
- Refer appropriately
 - If glandular cells are present or ECC is positive
 - Unsatisfactory colposcopy
 - Invasive cancer or out of scope



Delivery Systems

- Oral / systemic
 - Great for general immune support and addressing symptoms
 - Tonics, immune modulators, antiviral, hormone modulators
- Vaginal/cervical treatment
 - More effective in my experience but also more challenging for patients
 - Avoid use during menses
 - Wear liner the next day; there may be discharge
 - Often used at night
 - Suppositories
 - Vaginal gel / glycerite – used with vaginal applicator / menstrual disc / Caya diaphragm

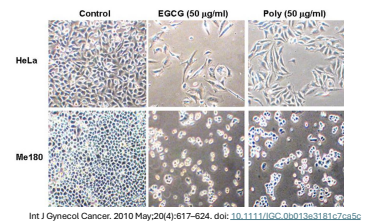


Camellia sinensis (green tea)

- Catechins are potent antioxidants and antiviral against HPV
 - Epigallocatechin-3-gallate (EGCG) inhibits development of cervical cancer in cell lines
 - EGCG downregulates oncoproteins E6 and E7
 - Stimulates apoptosis in cervical cancer cells (Butler & Wu, 2011)
- Sincatechins inhibit growth of cervical cancer cell lines (Tyring, 2012)
 - Used for anogenital warts / low risk HPV types
- Dose: 50-200mg a day (high polyphenols); may contain minimal caffeine
 - Makes a great beverage; 1-3 cups a day

Camellia sinensis (green tea)

EGCG and polyphenol E inhibit HPV-positive epithelium and cervical cancer growth in vitro at least in part by increasing p53 and P51 protein expression, apoptosis, and cell cycle progression (Zou et al, 2010)



Green Tea Delivery System

- CIN II, 51 patients compared to 39 controls (no treatment); 8-12 weeks
 - 20 of the 27 (74%) using [ointment](#) (Polyphenon E: EGCG and polyphenol E) 2x/week showed a response
 - 3 out of 6 (50%) using daily oral green [capsules](#) (200mg EGCG/polyE) showed a response
 - 6 of 8 (75%) using the [ointment](#) + oral [capsules](#) showed a response
 - 69% response in those treated with green tea, compared with 10% of controls (Ahn et al, 2003)
- Another study looked at 98 women with CIN I (LSIL) and HPV
 - 200mg oral Polyphenon E [capsules](#) (85-95% catechins, of which 56-72% are EGCG) daily vs placebo for 4 months
 - High % neg HPV in treatment group, not statistically significant – but many challenges in study design (Garcia et al, 2014)
- I use 150mg suppositories (compounded)

Trametes/Coreolus versicolor (Turkey tail mushroom)

- Polysaccharides are immune modulating with some evidence to support use in cervical, ovarian, prostate, colon, and lung cancers
- Inhibited cervical cancer cell lines (Rokos et al, 2023)
- In cancer cells, can indices cell cycle inhibition and apoptosis (Lowenthal et al, 2023)
- Best extracted in water, most studies on fruiting body
- Dose: 1-3 grams a day – capsules, powder, tea



Trametes versicolor (turkey tail) & Ganoderma lucidum (reishi)

- Oral HPV
- 472 patients underwent oral swabs for gingivitis and were tested for HPV
- 61 were positive for HPV16 or HPV18 in oral cavity.
- 20 patients were given Laetiporus sulphureus (control)
 - 5% clearance after 2 months of treatment
- 41 patients were given Trametes versicolor & Ganoderma lucidum
 - **88% clearance** ($P < 0.001$) after 2 months of treatment (Donatini, 2014)

Turkey Tail Vaginal Treatment

- Coriolus versicolor (turkey tail), Lactobacillus crispatus, hyaluronic acid, beta-glucan, Centella asiatica (gotu kola), Azadirachta indica (neem) and Aloe vera extracts in [vaginal gel](#)
- Better results in patients with ASC-US and LSIL (HPV) compared to watchful waiting
 - HPV cleared at twice the rate of those doing watchful waiting after 6 months
- Used once a day (vaginally) for 21 days – stop during menses
 - After that, use every other day
- Well-tolerated (Serrano et al, 2021)

Curcuma Longa (turmeric) rhizome

- Long history of use for inflammation and immune support
- Curcumin inhibited expression of E6/7 oncoproteins, decreased cell invasion and migration, and supported apoptosis in cervical cancer cell lines (in vitro) (Zhao et al, 2024)
- Curcumin cytotoxic to cervical cancer in vitro, particularly cells infected with HPV 16 or 18, compared to non-HPV infected cells (Divya & Pillai 2006)
- HPV positive cervical cancer cells pre-treated with estradiol decrease apoptosis; when curcumin counteracted this effect (Singh & Singh 2011)
- Increased efficacy when combined with elegiac acid (pomegranate), quercetin, resveratrol, ECGC, and Paclitaxel (Zhang et al, 2023)

Turmeric – Delivery System

- Oral 500mg-2,000mg a day in a bioavailable form
- Vaginal
 - Suppositories can be messy!
 - Intravaginal capsule dose escalation study for tolerability with Curcumin C3 complex
 - 500mg-2,000mg
 - SE: vaginal discharge, pruritis, dryness
 - “84% of women (n=11/13) disliked the color of the curcumin, and the majority found it was too messy. All the study subjects agreed they would recommend this product to women as a way to prevent cervical precancerous disease from turning into cancer, if approved as safe and effective”. (Gattoc et al, 2017)

Glycyrrhiza glabra (licorice)

- Broad spectrum antiviral, vulnerary, inflammation modulator, and adaptogen
- Can inhibit cancers including cervical (in vitro) and synergistic with some types of chemotherapy (cisplatin, 5-FU)
- Reduces expression of HPV E6 and E7 oncoproteins and restores inhibited p53
- Cytotoxic against cervical cancer cells

Glycyrrhiza – Delivery System

- Standardized [topical gel](#) Glizigen (0.1% glycyrrhizinic acid)/ Epigen
 - Cervical LSIL: topical use for 10 days; lesions normalized in 80%
 - Cervical/vag LSIL for 8-12 weeks vs imiquimod, resolved in 57% of Gly vs. 18% with imiquimod; Gly with less side effects (Bravo et al, 2023)
- **Topical + oral**
 - Glizigen/Viusid oral: licorice 100mg, L-arginine 2g, L-glycine, Medicago 120mg, vitamin C 60mg, B5 50mg, B6 1.8mg, folic acid 200mcg, cyanocobalamin 0.9mcg, zinc 15mg, glucosamine sulfate potassium chloride 2g, aspartame and orange flavor
 - Cervical LSIL for 12 weeks; negative cytology in 74%
 - HPV+ women & partner treated**: 88.8% negative at 4 weeks, 100% negative at 8 weeks; 14% recurrence in 6 months – in all cases, partner not treated or new partner (Bravo et al, 2023)
- Dose: 100-400mg a day
- Vaginal suppository, gel/glycerite

Sarracenia purpurea (pitcher plant)

- Historically used to treat smallpox (Garcia, 2020)
- Treatment of cervical cells with Sarracenia inhibited HPV E6/E7, increased expression of p53, and indicated cancer cell death (Moore and Langland, 2018)



Other Herbs of Interest

- Punica granatum (pomegranate) peel *
- Astragalus membranaceus *
- Lomatium dissectum (desert parsley)
- Hypericum perforatum (St. John's wort)
- Melissa officinalis (lemon balm)
- Thuja occidentalis / plicata (Eastern white cedar / red cedar) *
- Mahonia aquifolium (Oregon grape)/ berberine containing herbs*
- Larrea tridentata (chaparral) *
- Thymus vulgaris (thyme) *
- Sanguinaria canadensis (blood root) *
- Chelidonium majus (greater celandine) *
- Laurus nobilis (bay leaf) *

* Indicates at least one study in which the herb shows some effect on HR HPV or cervical cancer

Whole Person Support

- Regular exercise
 - Lack of regular physical activity associated with increased odds of cervical cancer (Szender et al, 2016)
- Smoking Cessation
 - Smoke impacts DNA methylation, exposes one to a number of toxins, upregulates inflammatory cytokines, may delay clearance of HPV (Fonseca-Moutinho, 2011)
- Avoid wood burning fires (Fonseca-Moutinho, 2011)
- Nutrient dense diet, rich in antioxidants
- Use of condoms, or pelvic rest

Sex partners of Women with HPV/Dysplasia

- Study looked at 90 male partners of women with HR HPV/dysplasia
 - 66.7% also tested for HPV; only 5.6% had symptoms (condylomatous lesions)
 - Most common HR HPV 31, 52, 53, 42, 51, 66 (only 31 and 52 in vaccine) (Sucato et al, 2025)
- Unfortunately – no data on same sex partners for this question
- HPV is associated with penile squamous cell carcinomas but limited conservative treatment [surgery, chemo/radiation (and vaccination)]
 - Will oral support of sex partner help the patient with HR HPV/cervical dysplasia?

Nutrition



- Zinc (30mg)
 - Lower intake associated with higher rates of cervical cancer (Ferrari et al, 2023)
 - Intravaginal zinc citrate 0.5mM 2x/week for 3 months showed higher rate of HPV regression 49/76 (64.47%) compared to no treatment (18/118) 15.25% (Kim et al, 2021)
- Selenium (100-200mcg)
 - Mixed evidence, supplementation associated with higher CIN1 regression rate (Ferrari et al, 2023)
- Vitamin C (500-3,000mg)
 - Lower risk of HPV and cervical cancer associated with higher serum levels (Ferrari et al, 2023)
- Vitamin E (400IU)
 - Higher intake/higher serum levels may protect against cervical dysplasia and cancer
- Vitamin B2 (riboflavin) 2mg (Lin et al, 2021)

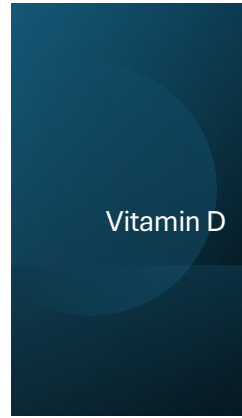
Folic Acid and Vitamin B12

- Folic acid promotes DNA methylation, which can influence cancer cell transformation
- Lower levels of folate and higher homocysteine correlate with higher risk of cervical dysplasia, HPV persistence, and risk of cervical cancer
- Women with higher plasma concentrations of folate (≥ 14.29 ng/mL) and a higher degree of HPV 16 ($\geq 11\%$) were 75% less likely to be diagnosed with CIN 2+, suggesting that such folate levels may allow them to keep the expression of E6 at a lower level (Piyathilake et al, 2013).
- 5mg a day of folate for 6 months showed higher regression rate in women with CIN I compared to placebo (Ferrari et al, 2023)
- Dose: at least 475mcg DFE (I typically prefer methylated) (Lin et al, 2021) and 1,000mcg methylB12



Carotenoids

- Fat soluble nutrients, antioxidant and immune supportive
- Lower dietary intake associated with persistent HPV infection; higher dietary intake associated with lower rates of HPV, cervical dysplasia, and cervical cancer (Ferrari et al, 2023)
- High levels of retinol/vitamin A associated with lower rates of cervical cancer and dysplasia
- Dose: 700mcg RAE or 2,333 IU Vit A
 - Excess intake associated with increased risk (Lin et al, 2021)
- Vitamin A suppositories: 240,000 IU (short term use)



Vitamin D

- Low dietary intake associated with higher risk of invasive cervical cancer (Ferrari et al, 2023)
- 50,000IU oral once every 2 weeks in women with CIN I compared to placebo for 6 months
 - Higher rates of regression in vitamin D group (Ferrari et al, 2023)
- Vitamin D vaginal suppository (12,500 IU) for 3 nights a week for 6 weeks in women with CIN I or CIN II & vaginitis, compared with Lactobacillus suppository
 - Vitamin D more effective at treating vaginitis symptoms
 - Reversion of CIN I but not CIN II in vitamin D group (Schulte-Uebbing et al, 2014)
- Dose 2,000-5,000 IU a day – titrate according to serum levels



Estrogen Modulators



- Estrogen, in particular ERα, supports proliferation of cervical cells
- Cell lines exposed to estradiol develop more frequent breaks in DNA in high risk, HPV-E6 cells (Ogawa et al, 2023)
- Indole 3 carbinol (I3C) and metabolites diindolylmethane (DIM) support estrogen metabolism
 - DIM disrupts HPV proliferation and inhibits E6/E7 in cervical cell cultures
 - DIM (1,000mg a day equivalent) suppressed E6/E7 expression in mice (Sepkovic et al, 2010)
 - UK study showed 150mg oral DIM no better than placebo for CIN2 (Castañon et al, 2012)
- Dose: DIM 200-400mg a day, I3C 100-200mg a day
 - Consider in particular, if symptoms of estrogen dominance



Intravaginal DIM

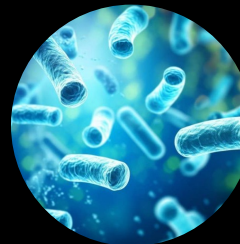
- Intravaginal DIM in women with CIN 1 or CIN II (78 participants)
- DIM 100mg 2x/day, DIM 100mg once a day, placebo suppository 2x/day for 180 days (at 90 days, if CIN was normal, treatment was stopped)
 - DIM 200mg 2x/day: 19/19 reverted (100%)
 - DIM 100mg once a day: 19/21 reverted (90%)
 - Placebo 2x/day: 11/18 reverted (61%)
 - DIM suppository was well tolerated
 - No mention of HPV testing (Ashrafian et al, 2015)

Other Support

- N-acetyl cysteine (NAC)
 - Reduces cell growth in cervical cancer lines, inhibits HPV E7, and surpasses tumor growth (Guo and Jing 2023)
 - Dose: 600mg 2-3x a day
- Arctium lappa (burdock) root
- Taraxacum officinale (dandelion) root
- Galium aparine (cleavers) areal
- Trifolium pratense (red clover) flower



Support Healthy Vaginal Microbiome



- Vaginal hyaluronic acid (HA) supports healthy vaginal tissue
 - Supports "spontaneous" clearance of HPV and LSIL (Laganà et al, 2023)
- Lactobacillus crispatus
 - Intravaginal capsule with Lactobacillus crispatus (1×10^9 CFU) in women HR HPV (those with dysplasia excluded from study) compared with placebo
 - Used for 14 days continuously months 1-3, then every 3 days for months 4-5, and 5x/month in month 6
 - HPV clearance rate 57.78% with Lactobacillus and 45.65% in placebo; improvement in inflammatory markers more pronounced in Lactobacillus group (Liu et al)
- BV and other vaginitis associated with higher rates of cervical dysplasia (Gillet et al, 2012)



Vaginal Hyaluronic Acid & Oral Echinacea root



- 153 women with HPV and LSIL/CIN I, interventions used once a day for 10 days each month for 3-months; re-pap at 3, 6, & 12 months
- **Oral Echinacea ang/purpurea root extracts** (100mg EA/100mg EP, 4 mg polyphenols, vitamin C 40 mg, zinc 5mg, copper 0.5 mg **with vaginal HA gel capsules**
 - At 6 and 12 months, highest levels of regression – 12 months: 46/51 (92%)
- Echinacea supplement alone
 - Regression a 12 months - 32/38 (84%)
- Vaginal hyaluronic acid alone
 - Regression a 12 months - 34/48 (71%) (Riemma et al, 2022)



Vaginal SAM gel

- 10.0mg silicon dioxide + Deflamin (24.8mg of citric acid, 0.25mg of selenium)
- Self administered daily for 3 months in women with CIN II or CIN I +p16/Ki67 - compared with "watch and wait" for 3 months, 6 months
 - Investigated HPV, p16/Ki-67, and cytology
 - 77% gel users reverted to cytology negative (77%); 32 (49%) reverted to HPV negative and no new infections
 - 21% placebo reverted to negative (22%); 8/76 cleared HPV but 13/76 were newly infected (Major et al, 2021)

Other Vaginal Support

- Test for and treat vaginitis – can cause low grade dysplasia and undue stress
- Oral probiotics (women's) and vaginal probiotics
 - Can test vaginal microbiome
 - L. Crispatus (LG55-27), L. gasseri (TM13-16), L. jensenii most beneficial (Lyu et al, 2024)
 - Want low levels of L. Iners
- Other considerations
 - Vaginal estriol
 - Vitamin E suppositories
 - Vaginal moisturizers
 - Calendula officinalis flower oral or suppositories

Sample Diet Approach



- Avoid inflammatory foods: fried foods, trans fats, and conventional red meat. Meat should be organic/grass fed and finished.
- 1 tablespoon of fresh ground flax seeds a day.
- Increase vegetables from the brassica family: broccoli, cauliflower, kale, Brussels sprouts, and cabbage.
- Increase intake of fermented foods: sauerkraut, pickles, miso/tempeh, yogurt, kefir.
- Aim for ½ body weight of water a day.
- Reduce coffee in favor of green tea.
- Eat organic when possible.

Increase foods rich in



- **Folic acid:** beans, lentils, spinach, asparagus, lettuce, avocado, broccoli, mango, oranges
- **Vitamin B12:** shellfish, liver, fish, crab, beef, dairy, eggs
- **Ascorbic acid:** bell peppers, guava, dark green leafies, kiwi, strawberries, broccoli, citrus, tomatoes, pea, papaya
- **Carotenoids/Vit A:** sweet potato, carrots, dark green leafies, lettuce, butternut squash, cantaloupe, dried apricots, broccoli, peas
- **Riboflavin:** almonds, cheese, beef, lamb, oily fish, mackerel, pork, egg, mushrooms, sesame seeds, squid, spinach
- **Selenium:** Brazil nuts, seafood, poultry, eggs, whole grains, lentils

Sample Lifestyle Plan



- Regular exercise (30 minutes at least 3-4 times a week)
- Stress management support
- Smoking cessation support if needed
- Use condoms with intercourse
- Avoid hormone disrupting chemicals
- Consider treating partner(s), especially in resistant / recurrent infections.



Natural Support (daily)

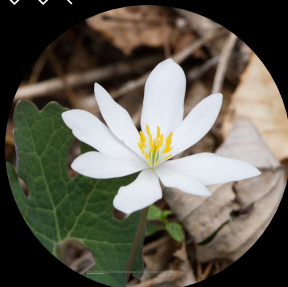
- Methylated folic acid 1,000mcg DFE
- Methylated Vitamin B12 1,000mcg
- Green tea polyphenols 1-3 cups/50-200mg
- Trametes versicolor 1-3 grams, divided
- Vitamin C + bioflavonoids 500mg-6g, divided
- NAC 1200-1800mg, divided
- DIM 200-400mg

3-12+ months

Vaginal Support Considerations

- Consider severity of presentation, lifestyle factors, ability and interest
- Likely to be more effective than oral, or best effects if combined
- Consider break days
- Assess for vaginal irritation
- Do not instruct patient to insert capsules meant for oral use into vagina!
- Green tea suppositories
- Vitamin A suppositories
- Trametes versicolor [vaginal gel](#)
- Other herbs as supps, glycerites/gels
- Vaginal probiotics, hyaluronic acid, vit E, Calendula

Escharotic Procedure



- Used for dysplasia when the patient refuses conventional treatment
 - If satisfactory colposcopy, no endocervical dysplasia, and no contraindications to the procedure
- Limited research
- Performed in office; twice a week for 10 sessions (not done during menses)
- Ingredients: bromelain, zinc chloride/Sanguinaria canadensis root, Calendula succus; green tea suppositories after treatment
- May be combined with oral treatment; typically followed by a round of vaginal suppositories
- More info [case study](#) & [case study update](#)

WOMEN'S ENCYCLOPEDIA of NATURAL MEDICINE

Alternative Therapies and Integrative Medicine for Total Health and Wellness

REVISED AND UPDATED

TORI HUDSON, N.D.

Foreword by CHRISTIANE NORTHERUP, M.D.
Author of WOMEN'S JOYFUL, WOMEN'S STRONG

More Info

- Treatment guidelines in Women's Encyclopedia of Natural Medicine
- The Beautiful Cervix Project <https://www.beautifulcervix.com/>

Thanks for listening!

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