

Contraceptive Options According to the Type of Hormone

Hormone	Route of Administration	Pharmacologic Effects	Effect on Lipid Profile	Androgenicity	Side Effects
Estrogen Component					
Estradiol valerate (E2V) (natural)	Oral	<ul style="list-style-type: none"> • Suppresses ovulation • Ensures adequate endometrial proliferation and stability • Less effect on hepatic proteins and hemostatic parameters 	<ul style="list-style-type: none"> • ↑ Total cholesterol • ↓ LDL • ↑ HDL • No change VLDL or triglycerides • ↑ Production of VLDL, HDL, and triglycerides • Enhances removal of LDL 	None	<ul style="list-style-type: none"> • Headache • Nausea/vomiting • DVT/VTE
Estetrol (E4) (native estrogen)	Oral	<ul style="list-style-type: none"> • Native estrogen with selective action in tissues (NEST) • Suppresses ovulation • Changes endometrium which alters implantation • Lower potential for Cytochrome P450 interactions 	<ul style="list-style-type: none"> • Neutral effect on lipoproteins • ↓ LDL • Neutral effect on glucose metabolism • ↓ Fasting glucose levels • ↓ Insulin levels • Positive impact on glucose tolerance 	None	<ul style="list-style-type: none"> • Irregular bleeding • Mood disturbances • Headache • Lower VTE risk than other estrogens
Ethinyl estradiol (synthetic)	<ul style="list-style-type: none"> • Oral • Transdermal Patch • Transvaginal Ring 	<ul style="list-style-type: none"> • Suppresses ovulation • Ensures adequate endometrial proliferation and stability • Increases 25(OH)D levels while in use 	<ul style="list-style-type: none"> • ↑ Production of VLDL, HDL, and triglycerides • Enhances removal of LDL 	None	<ul style="list-style-type: none"> • Headache • Nausea/vomiting • DVT/VTE • Irregular bleeding with lower doses • Breast discomfort

Hormone	Route of Administration	Pharmacologic Effects	Effect on Lipid Profile	Androgenicity	Side Effects
Progestin Component					
Desogestrel	Oral	<ul style="list-style-type: none"> • Suppresses ovulation • Thickens cervical mucus • Changes endometrium which alters implantation 	<ul style="list-style-type: none"> • Neutral effect on lipoproteins when used alone • ↑ HDL when used in combination with an estrogen 	Low	<ul style="list-style-type: none"> • ↓ Acne • ↓ Hirsutism • DVT/PE
Dienogest	Oral	<ul style="list-style-type: none"> • Suppresses ovulation • Thickens cervical mucus • Changes endometrium which alters implantation 	<ul style="list-style-type: none"> • ↑ Triglycerides • ↑ Apolipoprotein A1 	Low	None
Drospirenone	Oral	<ul style="list-style-type: none"> • Suppresses ovulation • Thickens cervical mucus • Changes endometrium which alters implantation 	<ul style="list-style-type: none"> • ↑ HDL-C • ↑ Triglycerides when used in combination with estrogens • ↓ LDL-C 	None	<ul style="list-style-type: none"> • Anti-mineralocorticoid diuretic effect may lower BP (SBP 7 – 8 mmHg) • Weight neutral • Less breast tenderness, bloating, fatigue and depressed mood than other low androgenic progestins • Irregular bleeding • DVT/PE
Ethinodiol diacetate (metabolizes to norethindrone)	Oral	Same as norethindrone	Same as norethindrone	Low	<ul style="list-style-type: none"> • Acne • Weight gain
Etonogestrel (active metabolite of desogestrel)	<ul style="list-style-type: none"> • Vaginal ring (Nuvaring and Eluring) • Subdermal implant (Nexplanon) 	<ul style="list-style-type: none"> • Suppresses ovulation • Thickens cervical mucus • Changes endometrium which alters implantation 	<ul style="list-style-type: none"> • ↑ Triglycerides, HDL-C • ↑ Apolipoprotein A1 • ↓ Apolipoprotein B 	Low	<ul style="list-style-type: none"> • Headache • Vaginal discharge • Foreign body sensation • Irregular bleeding • Breast discomfort

Hormone	Route of Administration	Pharmacologic Effects	Effect on Lipid Profile	Androgenicity	Side Effects
Progestin Component (Continued)					
Levonorgestrel	<ul style="list-style-type: none"> • Oral • Progestin containing IUDs • Transdermal patch (Twirla) 	<ul style="list-style-type: none"> • Thickens cervical mucus • ↓ Tubal motility • ↓ Tubal peristalsis 	<ul style="list-style-type: none"> • ↓ HDL-C & HDL2-C • ↑ Apolipoprotein B • Increased LDL • Increased TG 	High	<ul style="list-style-type: none"> • Acne • Weight gain • Unwanted hair growth • Irregular bleeding
Medroxyprogesterone acetate	Injectable	<ul style="list-style-type: none"> • Suppresses ovulation • Changes endometrium which alters implantation 	<ul style="list-style-type: none"> • ↑ Total cholesterol & LDL; self-limited first few weeks; improves over time • Decreased HDL 	Moderate	<ul style="list-style-type: none"> • Amenorrhea or menstrual irregularities • Weight gain (variable 2 – 7 kg) • ↓ Bone density (reversible upon discontinuation) • Allergic reaction upon discontinuation • Delayed return to baseline fertility
Norelgestromin (active metabolite of norgestimate)	Transdermal patch (Xulane)	<ul style="list-style-type: none"> • Suppresses ovulation • Thickens cervical mucus • Changes endometrium which alters implantation 	<ul style="list-style-type: none"> • ↑ HDL, HDL3, total cholesterol • ↑ triglycerides • ↓ LDL/HDL 	Low	<ul style="list-style-type: none"> • Local skin reaction • Breast discomfort • Headache • Nausea • DVT/PE • Avoids hepatic first-pass metabolism
Norethindrone	Oral	<ul style="list-style-type: none"> • Tubal motility impairment • ↓ Tubal peristalsis • Thickens cervical mucus 	<ul style="list-style-type: none"> • ↑ LDL • ↓ HDL, HDL2 • Decreased apolipoprotein A1 	Moderate	<ul style="list-style-type: none"> • Acne • Weight gain • Melasma

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Progestin Component (Continued)					
Norethindrone acetate (greater bioavailability than norethindrone)	Oral	Thickens cervical mucus	<ul style="list-style-type: none"> • ↑ LDL • ↓ HDL, HDL2 • Decreased apolipoprotein A1 	Moderate	<ul style="list-style-type: none"> • Acne • Weight gain
Norgestimate	Oral	<ul style="list-style-type: none"> • Suppresses ovulation • Thickens cervical mucus 	↓ LDL	Low	<ul style="list-style-type: none"> • ↓ Acne • ↓ Hirsutism • DVT/PE • Headache • Breast tenderness
Norgestrel	Oral	<ul style="list-style-type: none"> • Thickens cervical mucus • ↓ Tubal motility • ↓ Tubal peristalsis 	<ul style="list-style-type: none"> • ↓ HDL • ↑ LDL 	High	<ul style="list-style-type: none"> • Acne • Weight gain • Unwanted hair growth
Segesterone acetate	Vaginal ring (Annovera™)	<ul style="list-style-type: none"> • Thickens cervical mucus • ↓ Tubal motility • ↓ Tubal peristalsis 	Neutral effects	None	<ul style="list-style-type: none"> • Headache • Vaginal discharge • Foreign body sensation • Irregular bleeding • Breast discomfort

This job aid was developed by the National Clinical Training Center for Family Planning (NCTCFP). To learn more about the NCTCFP, visit www.ctcfp.org. This tool was adapted from: Florio, KL, Kao, M, Johnson, T et al (2020) Contraception for the Cardiac Patient: a Cardiologist's Primer. Current Treatment Options in Cardiovascular Medicine (2020) 22:68. DOI 10.1007/s11936-020-00853-7. This tool does not include all the information needed to safely and effectively use these medications. For complete drug information, review the manufacturer's prescribing information.

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