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LOW-DOSE COMBINED ORAL CONTRACEPTIVES

LOW-DOSE COMBINED ORAL CONTRACEPTIVES (COCs) \leq 35 μg of ethinylestradiol	COCs do not protect against STI/HIV. If there is risk of STI/HIV (including during pregnancy or postpartum), the correct and consistent use of condoms is recommended, either alone or with another contraceptive method. Male latex condoms are proven to protect against STI/HIV.	
CONDITION	CATEGORY I=Initiation C=Continuation	CLARIFICATIONS/EVIDENCE
PERSONAL CHARACTERISTICS AND REPRODUCTIVE HISTORY		
PREGNANCY	NA	Clarification: Use of COCs is not required. There is no known harm to the woman, the course of her pregnancy, or the fetus if COCs are accidentally used during pregnancy.
AGE*		
a) Menarche to < 40 years	1	
b) \geq 40 years	2	
PARITY		
a) Nulliparous	1	
b) Parous	1	
BREASTFEEDING*		
a) < 6 weeks postpartum	4	
b) \geq 6 weeks to < 6 months postpartum (primarily breastfeeding)	3	
c) \geq 6 months postpartum	2	
POSTPARTUM* (in non-breastfeeding women)		
a) < 21 days	3	
b) \geq 21 days	1	
POST-ABORTION		
a) First trimester	1	Clarification: COCs may be started immediately post-abortion.
b) Second trimester	1	
c) Immediate post-septic abortion	1	
PAST ECTOPIC PREGNANCY*	1	
HISTORY OF PELVIC SURGERY	1	

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CONDITION	CATEGORY I=Initiation C=Continuation	CLARIFICATIONS/EVIDENCE
SMOKING		
a) Age < 35 years	2	Evidence: COC users who smoked were at increased risk of cardiovascular diseases, especially myocardial infarction, compared with those who did not smoke. Studies also showed an increased risk of myocardial infarction with increasing number of cigarettes smoked per day. ¹⁻¹²
b) Age ≥ 35 years		
(i) <15 cigarettes/day	3	
(ii) ≥15 cigarettes/day	4	
OBESITY ≥ 30 kg/m ² body mass index (BMI)	2	Evidence: Obese women who used COCs were at increased risk of VTE compared with non-users. The absolute risk of VTE remained small. Data are limited regarding the impact of obesity on COC effectiveness. ^{6, 13, 14}
BLOOD PRESSURE MEASUREMENT UNAVAILABLE	NA	Clarification: It is desirable to have blood pressure measurements taken before initiation of COC use. However, in some settings blood pressure measurements are unavailable. In many of these settings pregnancy morbidity and mortality risks are high, and COCs are one of the few methods widely available. In such settings, women should not be denied use of COCs simply because their blood pressure cannot be measured.
CARDIOVASCULAR DISEASE		
MULTIPLE RISK FACTORS FOR ARTERIAL CARDIOVASCULAR DISEASE (such as older age, smoking, diabetes and hypertension)	3/4	Clarification: When a woman has multiple major risk factors, any of which alone would substantially increase the risk of cardiovascular disease, use of COCs may increase her risk to an unacceptable level. However, a simple addition of categories for multiple risk factors is not intended; for example, a combination of two risk factors assigned a category 2 may not necessarily warrant a higher category.
HYPERTENSION*		
For all categories of hypertension, classifications are based on the assumption that no other risk factors for cardiovascular disease exist. When multiple risk factors do exist, risk of cardiovascular disease may increase substantially. A single reading of blood pressure level is not sufficient to classify a woman as hypertensive.		
a) History of hypertension, where blood pressure CANNOT be evaluated (including hypertension in pregnancy)	3	Clarification: Evaluation of cause and level of hypertension is recommended, as soon as feasible. Evidence: Women who did not have a blood pressure check before COC use had an increased risk of acute myocardial infarction and stroke. ¹⁵⁻¹⁹

* See also additional comments at end of table

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CONDITION	CATEGORY I=Initiation C=Continuation	CLARIFICATIONS/EVIDENCE
HYPERTENSION (Cont'd)		
<p>b) Adequately controlled hypertension, where blood pressure CAN be evaluated</p> <p>c) Elevated blood pressure levels (properly taken measurements)</p> <p>(i) systolic 140-159 or diastolic 90-99</p> <p>(ii) systolic \geq160 or diastolic \geq100</p> <p>d) Vascular disease</p>	<p>3</p> <p>3</p> <p>4</p> <p>4</p>	<p>Clarification: Women adequately treated for hypertension are at reduced risk of acute myocardial infarction and stroke as compared with untreated women. Although there are no data, COC users with adequately controlled and monitored hypertension should be at reduced risk of acute myocardial infarction and stroke compared with untreated hypertensive COC users.</p> <p>Evidence: Among women with hypertension, COC users were at increased risk of stroke, acute myocardial infarction, and peripheral arterial disease compared with non-users.^{1,3,9-11, 15-31}</p>
HISTORY OF HIGH BLOOD PRESSURE DURING PREGNANCY (where current blood pressure is measurable and normal)	2	Evidence: Women who had a history of high blood pressure in pregnancy, who also used COCs, had an increased risk of myocardial infarction and venous thromboembolism, compared with COC users who did not have a history of high blood pressure during pregnancy. The absolute risks of acute myocardial infarction and venous thromboembolism in this population remained small. ^{11, 17-19, 21, 32-37}
DEEP VENOUS THROMBOSIS (DVT)/ PULMONARY EMBOLISM (PE)*		
<p>a) History of DVT/PE</p> <p>b) Current DVT/PE</p> <p>c) Family history of DVT/PE (first-degree relatives)</p> <p>d) Major surgery</p> <p>(i) with prolonged immobilization</p> <p>(ii) without prolonged immobilization</p> <p>e) Minor surgery without immobilization</p>	<p>4</p> <p>4</p> <p>2</p> <p>4</p> <p>2</p> <p>1</p>	

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CONDITION	CATEGORY I=Initiation C=Continuation	CLARIFICATIONS/EVIDENCE
KNOWN THROMBOGENIC MUTATIONS (e.g., Factor V Leiden; Prothrombin mutation; Protein S, Protein C, and Antithrombin deficiencies)	4	Clarification: Routine screening is not appropriate because of the rarity of the conditions and the high cost of screening. Evidence: Among women with thrombogenic mutations, COC users had a two to twenty-fold higher risk of thrombosis than non-users. ³⁸⁻⁵¹
SUPERFICIAL VENOUS THROMBOSIS* a) Varicose veins b) Superficial thrombophlebitis	1 2	
CURRENT AND HISTORY OF ISCHAEMIC HEART DISEASE*	4	
STROKE* (history of cerebrovascular accident)	4	
KNOWN HYPERLIPIDAEMIAS	2/3	Clarification: Routine screening is not appropriate because of the rarity of the conditions and the high cost of screening. While some types of hyperlipidaemias are risk factors for vascular disease, the category should be assessed according to the type, its severity, and the presence of other cardiovascular risk factors.
VALVULAR HEART DISEASE* a) Uncomplicated b) Complicated (pulmonary hypertension, risk of atrial fibrillation, history of subacute bacterial endocarditis)	2 4	

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CONDITION	CATEGORY I=Initiation C=Continuation	CLARIFICATIONS/EVIDENCE
NEUROLOGIC CONDITIONS		
HEADACHES*	I	C
a) Non-migrainous (mild or severe)	1	2
b) Migraine (i) without aura <i>Age < 35</i> <i>Age ≥ 35</i> (ii) with aura, at any age	2	3
	3	4
	4	4
EPILEPSY	1	
DEPRESSIVE DISORDERS		
DEPRESSIVE DISORDERS	1	
REPRODUCTIVE TRACT INFECTIONS AND DISORDERS		
VAGINAL BLEEDING PATTERNS*		
a) Irregular pattern <i>without</i> heavy bleeding	1	
b) Heavy or prolonged bleeding (includes regular and irregular patterns)	1	
Clarification: Unusually heavy bleeding should raise the suspicion of a serious underlying condition.		

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CONDITION	CATEGORY I=Initiation C=Continuation	CLARIFICATIONS/EVIDENCE
UNEXPLAINED VAGINAL BLEEDING* (suspicious for serious condition) Before evaluation	2	Clarification: If pregnancy or an underlying pathological condition (such as pelvic malignancy) is suspected, it must be evaluated and the category adjusted after evaluation.
ENDOMETRIOSIS*	1	
BENIGN OVARIAN TUMOURS (including cysts)	1	
SEVERE DYSMENORRHOEA	1	Evidence: There was no increased risk of side-effects with COC use among women with dysmenorrhoea compared to women not using COCs. Some COC users had a reduction in pain and bleeding. ^{62, 63}
TROPHOBLAST DISEASE a) Benign gestational trophoblastic disease b) Malignant gestational trophoblastic disease	1 1	Evidence: Among women with benign or malignant gestational trophoblastic disease, there was no difference in mean times to hCG normalization or incidence of postmolar trophoblastic disease for COC users compared to non-hormonal users. ⁶⁴⁻⁷¹
CERVICAL ECTROPION*	1	
CERVICAL INTRAEPITHELIAL NEOPLASIA (CIN)	2	Evidence: Among women with persistent HPV infection, long-term COC use (≥ 5 years) may increase the risk of carcinoma in situ and invasive carcinoma. ⁷²
CERVICAL CANCER* (awaiting treatment)	2	
BREAST DISEASE* a) Undiagnosed mass b) Benign breast disease c) Family history of cancer	2 1 1	Clarification: Evaluation should be pursued as early as possible. Evidence: Among COC users with a family history of breast cancer, there was no increased risk of breast cancer compared with non-COC users with a family history of breast cancer. ⁷³⁻⁸⁰ Among women with BRCA1 mutations, COC users may have a small increased risk of breast cancer compared with non-users. ⁸¹⁻⁸³

* See also additional comments at end of table

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CONDITION	CATEGORY I=Initiation C=Continuation	CLARIFICATIONS/EVIDENCE
BREAST DISEASE (Cont'd)		
d) Breast cancer		
(i) current	4	
(ii) past and no evidence of current disease for 5 years	3	
ENDOMETRIAL CANCER*	1	
OVARIAN CANCER*	1	
UTERINE FIBROIDS*		
a) Without distortion of the uterine cavity	1	
b) With distortion of the uterine cavity	1	
PELVIC INFLAMMATORY DISEASE (PID)*		
a) Past PID (assuming no current risk factors for STIs)		
(i) with subsequent pregnancy	1	
(ii) without subsequent pregnancy	1	
b) PID - current	1	
STIs*		
a) Current purulent cervicitis or chlamydial infection or gonorrhoea	1	
b) Other STIs (excluding HIV and hepatitis)	1	

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CONDITION	CATEGORY I=Initiation C=Continuation	CLARIFICATIONS/EVIDENCE
STIs (Cont'd)		
c) Vaginitis (including trichomonas vaginalis and bacterial vaginosis)	1	
d) Increased risk of STIs	1	Evidence: Evidence suggests that there may be an increased risk of chlamydial cervicitis among COC users at high risk of STIs. For other STIs, there is either evidence of no association between COC use and STI acquisition or limited evidence to draw any conclusions. ⁸⁴⁻¹⁶⁰
HIV/AIDS		
HIGH RISK OF HIV*	1	Evidence: Overall, evidence is inconsistent regarding whether there is any increased risk of HIV acquisition among COC users compared with non-users. ¹⁶¹⁻¹⁹⁸
HIV-INFECTED	1	Evidence: Limited evidence suggests no association between COC use and changes in RNA levels or CD4 counts among HIV-infected women. There is also limited evidence showing no association between COC use and female to male HIV transmission, and mixed results regarding increased risk of HIV and herpes simplex virus (HSV) shedding among HIV-infected women using hormonal contraception. ^{161, 199-204}
AIDS On ARV therapy	1 2	Clarification: If a woman is taking antiretroviral (ARV) therapy, refer to the section on drug interactions. Because there may be drug interactions between hormonal contraceptives and ARVs, AIDS with ARV therapy is classified as Category 2.
OTHER INFECTIONS		
SCHISTOSOMIASIS		
a) Uncomplicated	1	Evidence: Among women with uncomplicated schistosomiasis, COC use had no adverse effects on liver function. ²⁰⁵⁻²¹¹
b) Fibrosis of liver (if severe, see cirrhosis)	1	
TUBERCULOSIS		
a) Non-pelvic	1	Clarification: If a woman is taking rifampicin, refer to the section on drug interactions. Rifampicin is likely to decrease COC effectiveness.
b) Known pelvic	1	
MALARIA	1	

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CONDITION	CATEGORY I=Initiation C=Continuation	CLARIFICATIONS/EVIDENCE
ENDOCRINE CONDITIONS		
DIABETES*		
a) History of gestational disease	1	
b) Non-vascular disease		
(i) non-insulin dependent	2	
(ii) insulin dependent	2	
c) Nephropathy/ retinopathy/ neuropathy	3/4	Clarification: The category should be assessed according to the severity of the condition.
d) Other vascular disease or diabetes of > 20 years' duration	3/4	Clarification: The category should be assessed according to the severity of the condition.
THYROID DISORDERS		
a) Simple goitre	1	
b) Hyperthyroid	1	
c) Hypothyroid	1	
GASTROINTESTINAL CONDITIONS		
GALL-BLADDER DISEASE*		
a) Symptomatic		
(i) treated by cholecystectomy	2	
(ii) medically treated	3	
(iii) current	3	
b) Asymptomatic	2	
HISTORY OF CHOLESTASIS*		
a) Pregnancy-related	2	
b) Past COC-related	3	
VIRAL HEPATITIS*		
a) Active	4	
b) Carrier	1	

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CONDITION	CATEGORY I=Initiation C=Continuation	CLARIFICATIONS/EVIDENCE
CIRRHOSIS*		
a) Mild (compensated)	3	
b) Severe (decompensated)	4	
LIVER TUMOURS*		
a) Benign (adenoma)	4	
b) Malignant (hepatoma)	4	
ANAEMIAS		
THALASSAEMIA*	1	
SICKLE CELL DISEASE	2	
IRON-DEFICIENCY ANAEMIA*	1	
DRUG INTERACTIONS		
DRUGS WHICH AFFECT LIVER ENZYMES		
a) Rifampicin	3	Clarification: Although the interaction of rifampicin or certain anticonvulsants with COCs is not harmful to women, it is likely to reduce the effectiveness of COCs. Use of other contraceptives should be encouraged for women who are long-term users of any of these drugs. Whether increasing the hormone dose of COCs is of benefit remains unclear. Evidence: Use of rifampicin and certain anticonvulsants decreased the contraceptive effectiveness of COCs. ²¹²⁻²³⁷
b) Certain anticonvulsants (phenytoin, carbamazepine, barbiturates, primidone, topiramate, oxcarbazepine)	3	
ANTIBIOTICS (excluding rifampicin)		
a) Griseofulvin	2	Evidence: The contraceptive effectiveness of COCs was not affected by coadministration of most broad-spectrum antibiotics. ²³⁸⁻²⁹⁰
b) Other antibiotics	1	

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CONDITION	CATEGORY I=Initiation C=Continuation	CLARIFICATIONS/EVIDENCE
ANTIRETROVIRAL THERAPY	2	<p>Clarification: It is important to note that antiretroviral drugs (ARV) have the potential to either decrease or increase the bioavailability of steroid hormones in hormonal contraceptives. The limited data available (outlined in Annex 1) suggest that potential drug interactions between many ARVs (particularly some non-nucleoside reverse transcriptase inhibitors (NNRTIs) and protease inhibitors (PIs)) and hormonal contraceptives may alter safety and effectiveness of both the hormonal contraceptives and the ARVs. It is not known whether the contraceptive effectiveness of progestogen-only injectable contraceptives (such as depot medroxyprogesterone acetate and norethisterone enantate) would be compromised, as these methods provide higher blood hormone levels than other progestogen-only hormonal contraceptives, as well as than combined oral contraceptives. Studies are underway to evaluate potential interactions between depot medroxyprogesterone acetate and selected PI and NNRTI drugs. Thus, if a woman on ARV treatment decides to initiate or continue hormonal contraceptive use, the consistent use of condoms is recommended for preventing HIV transmission and may also compensate for any possible reduction in the effectiveness of the hormonal contraceptive.</p> <p>Evidence: See Annex 1.</p>

* See also additional comments at end of table

Additional comments

AGE

Menarche to < 40 years: Theoretical concerns about the use of combined hormonal contraceptives among young adolescents have not been substantiated.

≥ 40 years: The risk of cardiovascular disease increases with age and may also increase with combined hormonal contraceptive use. In the absence of other adverse clinical conditions, combined hormonal contraceptives can be used until menopause.

BREASTFEEDING

< 6 weeks postpartum: There is some theoretical concern that the neonate may be at risk due to exposure to steroid hormones during the first 6 weeks postpartum.

≥ 6 weeks to < 6 months (primarily breastfeeding): Use of COCs during breastfeeding diminishes the quantity of breast milk, decreases the duration of lactation, and may thereby adversely affect the growth of the infant.

POSTPARTUM

< 21 days: There is some theoretical concern regarding the association between combined hormonal contraceptive use up to 3 weeks postpartum and risk of thrombosis in the mother. Blood coagulation and fibrinolysis are essentially normalized by 3 weeks postpartum.

PAST ECTOPIC PREGNANCY

The risk of future ectopic pregnancy is increased among women who have had an ectopic pregnancy in the past. Combined hormonal contraceptives provide protection against pregnancy in general, including ectopic gestation.

HYPERTENSION

Vascular disease: Among women with underlying vascular disease, the increased risk of arterial thrombosis associated with combined hormonal contraceptive use should be avoided.

DEEP VEIN THROMBOSIS (DVT)/ PULMONARY EMBOLISM (PE)

Family history of DVT/PE (first-degree relatives): Some conditions which increase the risk of DVT/PE are heritable.

Major surgery: The degree of risk of DVT/PE associated with major surgery varies depending on the length of time that a woman is immobilized. There is no need to stop combined hormonal contraceptives prior to female surgical sterilization.

SUPERFICIAL VEIN THROMBOSIS

Varicose veins: Varicose veins are not risk factors for DVT/PE.

CURRENT AND HISTORY OF ISCHAEMIC HEART DISEASE

Among women with underlying vascular disease, the increased risk of arterial thrombosis associated with combined hormonal contraceptive use should be avoided.

STROKE

Among women with underlying vascular disease, the increased risk of arterial thrombosis associated with combined hormonal contraceptive use should be avoided.

VALVULAR HEART DISEASE

Among women with valvular heart disease, combined hormonal contraceptive use may further increase the risk of arterial thrombosis; women with complicated valvular heart disease are at greatest risk.

HEADACHES

Aura is a specific focal neurologic symptom. For more information on this and other diagnostic criteria, see: Headache Classification Subcommittee of the International Headache Society. The International Classification of Headache Disorders, 2nd Edition. Cephalalgia. 2004; 24 (Suppl 1): 1- 150.

http://216.25.100.131/ihscommon/guidelines/pdfs/ihc_II_main_no_print.pdf

VAGINAL BLEEDING PATTERNS

Irregular menstrual bleeding patterns are common among healthy women.

UNEXPLAINED VAGINAL BLEEDING

There are no conditions that cause vaginal bleeding that will be worsened in the short term by use of combined hormonal contraceptives.

ENDOMETRIOSIS

Combined hormonal contraceptives do not worsen, and may alleviate, the symptoms of endometriosis.

CERVICAL ECTROPION

Cervical ectropion is not a risk factor for cervical cancer, and there is no need for restriction of combined hormonal contraceptive use.

CERVICAL CANCER (awaiting treatment)

There is some theoretical concern that combined hormonal contraceptive use may affect prognosis of the existing disease. While awaiting treatment, women may use combined hormonal contraceptives. In general, treatment of this condition renders a woman sterile.

BREAST DISEASE

Family history of cancer: Women with BRCA1 or BRCA2 mutations have a much higher baseline risk of breast cancer than women who do not have these mutations. Most women with a family history of breast cancer do not have these mutations.

Breast cancer: Breast cancer is a hormonally sensitive tumour, and the prognosis of women with current or recent breast cancer may worsen with combined hormonal contraceptive use.

ENDOMETRIAL CANCER

COC use reduces the risk of developing endometrial cancer. While awaiting treatment, women may use COCs. In general, treatment of this condition renders a woman sterile.

OVARIAN CANCER

COC use reduces the risk of developing ovarian cancer. While awaiting treatment, women may use COCs. In general, treatment of this condition renders a woman sterile.

UTERINE FIBROIDS

COCs do not appear to cause growth of uterine fibroids.

PELVIC INFLAMMATORY DISEASE (PID)

COCs may reduce the risk of PID among women with STIs, but do not protect against HIV or lower genital tract STIs.

STIs

COCs may reduce the risk of PID among women with STIs, but do not protect against HIV or lower genital tract STIs.

HIGH RISK OF HIV

COCs may reduce the risk of PID among women with STIs, but do not protect against HIV or lower genital tract STIs.

DIABETES

Although carbohydrate tolerance may change with combined hormonal contraceptive use, the major concerns are vascular disease due to diabetes and additional risk of arterial thrombosis due to combined hormonal contraceptive use.

GALL-BLADDER DISEASE

COCs may cause a small increased risk of gall-bladder disease. There is also concern that COCs may worsen existing gall-bladder disease.

HISTORY OF CHOLESTASIS

Pregnancy-related: History of pregnancy-related cholestasis may predict an increased risk of developing COC-associated cholestasis.

Past COC-related: History of COC-related cholestasis predicts an increased risk with subsequent COC use.

VIRAL HEPATITIS

Active: COCs are metabolized by the liver, and their use may adversely affect women whose liver function is compromised.

CIRRHOSIS

COCs are metabolized by the liver and their use may adversely affect women whose liver function is compromised.

LIVER TUMOURS

COCs are metabolized by the liver and their use may adversely affect women whose liver function is compromised. In addition, COC use may enhance the growth of tumours.

THALASSAEMIA

There is anecdotal evidence from countries where thalassaemia is prevalent that COC use does not worsen the condition.

IRON-DEFICIENCY ANAEMIA

Combined hormonal contraceptive use may decrease menstrual blood loss.

References for low-dose combined oral contraceptives

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3. Khader YS et al. Oral contraceptives use and the risk of myocardial infarction: a meta-analysis. *Contraception*, 2003, 68:11-7.
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