Bayer plc
Bayer House, Strawberry Hill, Newbury, Berkshire, RG14 1JA
Telephone: +44 (0)1635 563 000
Fax: +44 (0)1635 563 393
WWW: http://www.bayer.co.uk

Summary of Product Characteristics last updated on the eMC: 08/10/2012

Microgynon 30 ED

1. Name of the medicinal product

MICROGYNON® 30 ED

2. Qualitative and quantitative composition

Each memo-pack contains 21 beige active tablets and 7 white placebo tablets which are larger.

Each active tablet contains

Actives:

Levonorgestrel	150 micrograms
Ethinylestradiol	30 micrograms

Excipients:

Lactose	32.970 mg
Sucrose	19.371 mg

Each placebo tablets contains:

Excipients:

Lactose	48.250 mg
Sucrose	33.980 mg

For full list of excipients, see section 6.1

3. Pharmaceutical form

Sugar-coated tablets

4. Clinical particulars

4.1 Therapeutic indications

Oral contraception and the recognised gynaecological indications for such oestrogen-progestogen combinations.

4.2 Posology and method of administration

Tablets must be taken orally in the order directed on the blister package at about the same time every day, with some liquid if necessary.

First treatment cycle: 1 tablet daily for 28 days, starting on the first day of the menstrual cycle. 21 (small) active tablets are taken followed by 7 (larger) placebo tablets. Contraceptive protection begins immediately.

Subsequent cycles: Tablet-taking is continuous, which means that the next pack of Microgynon 30 ED follows immediately without a break. A withdrawal bleed usually occurs when the placebo tablets are being taken.

Changing from 21-day combined oral contraceptives: The first tablet of Microgynon 30 ED should be taken on the first day immediately after the end of the previous oral contraceptive course. Additional contraceptive precautions are not required.

Changing from a combined Every Day pill (28 -day pill): Microgynon 30 ED should be started after taking the last active tablet from the previous Every Day pill pack. The first Microgynon 30 ED tablet is taken the next day. Additional contraceptive precautions are not then required.

Changing from a progestogen-only pill (POP):

The first tablet of Microgynon 30 ED should be taken on the first day of bleeding, even if a POP has already been taken on that day. Additional contraceptive precautions are not then required. The remaining progestogen-only pills should be discarded.

Post-partum and post-abortum use: After pregnancy, oral contraception can be started 21 days after a vaginal delivery, provided that the patient is fully ambulant and there are no puerperal complications. Additional contraceptive precautions will be required for the first 7 days of tablet taking to ensure adequate contraceptive cover if early ovulation has occurred. Since the first post-partum ovulation may precede the first bleeding, another method of contraception should be used in the interval between childbirth and the first course of tablets. After a first-trimester abortion, oral contraception may be started immediately in which case no additional contraceptive precautions are required.

Special circumstances requiring additional contraception

Incorrect administration: Errors in taking the 7 placebo tablets (i.e. the larger white tablets in the last row) can be ignored.

A single delayed active (small) tablet should be taken as soon as possible, and if this can be done within 12 hours of the correct time, contraceptive protection is maintained.

With longer delays in taking active tablets, additional contraception is needed. Only the most recently delayed tablet should be taken, earlier missed tablets being omitted, and additional non-hormonal methods of contraception (except the rhythm or temperature methods) should be used for the next 7 days, while the next 7 active (small) tablets are being taken. Therefore, if the 7 days additional contraception extend beyond the last active (small) tablet, the user should finish taking all the active tablets, discard the placebo tablets and start a new pack of Microgynon 30 ED the next day with an appropriate active (small) tablet. Thus, active tablet follows active tablet with no 7 day break. In this situation, a withdrawal bleed should not be expected until the end of the second pack. Some breakthrough bleeding may occur on tablet taking days but this is not clinically significant. If the patient does not have a withdrawal bleed following the end of the second pack, the possibility of pregnancy must be ruled out before starting the next pack.

Gastro-intestinal upset: Vomiting or diarrhoea may reduce the efficacy of oral contraceptives by preventing full absorption. If vomiting or diarrhoea occurs within 4 hours of tablet-taking from the current pack should be continued. Additional non-hormonal methods of contraception (except the rhythm or temperature methods) should be used during the gastro-intestinal upset and for 7 days following the upset. If these 7 days extend beyond the last active (small) tablet the user should finish taking all the active tablets, discard the placebo tablets and start a new pack of Microgynon 30 ED the next day with an appropriate active (small) tablet. In this situation, a withdrawal bleed should not be expected until the end of the second pack. If the patient does not have a withdrawal bleed at the end of the second pack, the possibility of pregnancy must be ruled out before starting the next pack. Other methods of contraception should be considered if the gastro-intestinal disorder is likely to be prolonged.

Children: Not applicable

Elderly: Not applicable

4.3 Contraindications

Combined oral contraceptives (COCs) should not be used in the presence of any of the conditions listed below. Should any of the conditions appear for the first time during COC use, the product should be stopped immediately.

• Existing or a history of confirmed venous thromboembolism (VTE) (e.g. deep venous thrombosis, pulmonary embolism), major surgery with prolonged immobilisation and other known risk factors for VTE.

• Existing or previous arterial thrombotic or embolic processes (stroke (e.g. transient ischaemic attack, ischemic stroke, haemorrhagic stroke), angina, myocardial infarction).

• Conditions which predispose to thromboembolism e.g., disorders of the clotting processes, valvular heart disease and atrial fibrillation, known thrombogenic mutations.

• Severe and/or multiple risk factor(s) for venous or arterial thrombosis (see section 4.4).

• Severe or uncontrolled hypertension or hypertension associated with vascular disease

• History of migraine with focal neurological symptoms.

• Severe diabetes mellitus with vascular changes.

• Presence or history of severe hepatic disease, e.g. active viral hepatitis and severe cirrhosis, as long as liver function values have not returned to normal.

• Presence or history of liver tumours (benign or malignant).

• Current or history of breast cancer.

• Hypersensitivity to the active substance(s) or to any of the excipients.

Relevant UK clinical guidance should also be consulted.

4.4 Special warnings and precautions for use

Medical Examination

Assessment of women prior to starting oral contraceptives (and at regular intervals thereafter) should include a personal and family medical history of each woman. Physical examination should be guided by this and by the contraindications (section 4.3) and warnings (section 4.4) for this product. The frequency and nature of these assessments should be based upon relevant guidelines and should be adapted to the individual woman, but should include measurement of blood pressure and, if judged appropriate by the clinician, breast, abdominal and pelvic examination including cervical cytology. The woman should also be instructed to carefully read the user leaflet and to adhere to the advice given.

Undiagnosed vaginal bleeding that is suspicious for underlying conditions should be investigated.

Exclude the likelihood of pregnancy before starting treatment.

Warnings:

Women should be advised that oral contraceptives do not protect against HIV infections (AIDS) and other sexually transmitted diseases.

Conditions which require strict medical supervision

The decision to prescribe the COC must be made using clinical judgement and in consultation with the woman. Exacerbation or first appearance of any of these conditions or risk factors may indicate that use of the oral contraceptive should be discontinued. The woman should contact her physician, who should then decide on whether COC use should be discontinued:

• Diabetes mellitus with mild vascular disease or mild nephropathy, retinopathy or neuropathy

• Hypertension that is adequately controlled, i.e. systolic >140 to159 mm Hg or diastolic > 90 to 94mmHg (see also Section 4.4 'Reasons for stopping oral contraception immediately')

• porphyria

• obesity

• migraine

• cardiovascular diseases

Reasons for stopping oral contraception immediately:

When stopping oral contraception non-hormonal contraception should be used to ensure contraceptive protection is maintained.

1. Occurrence for the first time, or exacerbation, of migrainous headaches or unusually frequent or unusually severe headaches

2. Sudden disturbances of vision, of hearing or other perceptual disorders

3. First signs of thrombosis or blood clots (e.g. unusual pains in or swelling of the leg(s), stabbing pains on breathing or coughing for no apparent reason). Feeling of pain and tightness in the chest

4. Six weeks before an elective major operation (e.g. abdominal, orthopaedic), any surgery to the legs, medical treatment for varicose veins or prolonged immobilisation, e.g. after accidents or surgery. Do not restart until 2 weeks after full ambulation. In case of emergency surgery, thrombotic prophylaxis is usually indicated e.g. subcutaneous heparin

5. Onset of jaundice, hepatitis, itching of the whole body

6. Significant rise in blood pressure

7. Severe upper abdominal pain or liver enlargement

8. Clear exacerbation of conditions known to be capable of deteriorating during oral contraception or pregnancy (see section 4.4 'Conditions which deteriorate in pregnancy or during previous COC use' under 'Other conditions')

Circulatory Disorders

• *Venous thromboembolism*

The use of any combined oral contraceptive carries an increased risk of venous thromboembolism (VTE) compared with no use. The excess risk of VTE is highest during the first year a woman ever uses a combined oral contraceptive. This increased risk is less than the risk of VTE associated with pregnancy which is estimated as 60 cases per 100, 000 pregnancies. Venous thromboembolism is fatal in 1-2% of cases.

Some epidemiological studies have reported a greater risk of VTE for women using combined oral contraceptives containing desogestrel or gestodene (the so-called 'third generation' pills) than for women using pills containing levonorgestrel (the so-called 'second generation' pills).

The spontaneous incidence of VTE in healthy non-pregnant women (not taking any oral contraceptive) is about 5 cases per 100,000 per year. The incidence in users of second generation pills is about 15 per 100,000 women per year of use. The incidence in users of third generation pills is about 25 cases per 100,000 women per year of use; this excess incidence has not

been satisfactorily explained by bias or confounding. The level of all these risks of VTE increases with age and is likely to be further increased in women with other known risk factors for VTE such as obesity.

The risk of VTE increases with:

• age

• obesity (body mass index over 30 kg/m^2)

• a personal or family history (i.e. venous thromboembolism ever in a sibling or parent at a relatively early age). If a hereditary or acquired predisposition is suspected, the woman should be referred to a specialist for advice before deciding about any COC use (see section 4.4 for further information on biochemical factors under 'Other factors affecting circulatory events')

• prolonged immobilisation, major surgery, any surgery to the legs, or major trauma. In these situations it is advisable to discontinue COC use (in the case of elective surgery at least six weeks in advance) and not to resume until two weeks after complete remobilisation.

There is no consensus about the possible role of varicose veins and superficial thrombophlebitis in venous thromboembolism.

The increased risk of thromboembolism in the puerperium must be considered (for information on “Pregnancy and lactation” see Section 4.6).

Common signs/symptoms of VTE include:

• severe pain in the calf of one leg; swelling of the lower leg

• sudden breathlessness, chest pain.

• *Arterial thromboembolic-related conditions*

The use of a combined oral contraceptive may also increase the risk of conditions such as stroke and myocardial infarction which are secondary to arterial thromboembolic events. Other risk factors for arterial thromboembolism include:

• age

• smoking (with heavier smoking and increasing age the risk further increases, especially in women over 35 years of age)

• a positive family history (i.e., venous or arterial thromboembolism ever in a sibling or parent at a relatively early age). If a hereditary or acquired predisposition is suspected, the woman should be referred to a specialist for advice before deciding about any COC use

• obesity (body mass index over 30 kg/m^2)

• dyslipoproteinaemia

• hypertension

• valvular heart disease

• atrial fibrillation

• migraine. An increase in frequency or severity of migraine during COC use (which may be prodromal of a cerebrovascular event) may be a reason for immediate discontinuation of the COC

Common signs/symptoms associated with arterial thromboembolism include:

• sudden severe pain in the chest, whether or not reaching to the left arm;

• sudden coughing for no apparent reason

• any unusual severe, prolonged headache, especially if it occurs for the first time or gets progressively worse, or is associated with any of the following symptoms:

• sudden partial or complete loss of vision or diplopia;

• aphasia;

• vertigo;

• collapse with or without focal epilepsy;

• weakness or very marked numbness suddenly affecting one side or one part of the body.

• *Other factors affecting circulatory events*

Other medical conditions which have been associated with adverse circulatory events include diabetes mellitus, systemic lupus erythematosus, chronic inflammatory bowel disease (Crohn's disease or ulcerative colitis) and sickle cell disease.

Biochemical factors that may be indicative of hereditary or acquired predisposition for venous or arterial thrombosis include Activated Protein C (APC) resistance, hyperhomocysteinaemia, antithrombin-III deficiency, protein C deficiency, protein S deficiency, antiphospholipid antibodies (anticardiolipin antibodies, lupus anticoagulant).

When considering risk/benefit, the physician should take into account that adequate treatment of a condition may reduce the associated risk of thrombosis and that the risk associated with pregnancy is higher than that associated with COC use.

Tumours

Numerous epidemiological studies have been reported on the risks of ovarian, endometrial, cervical and breast cancer in women using combined oral contraceptives. The evidence is clear that high dose combined oral contraceptives offer substantial protection against both ovarian and endometrial cancer. However, it is not clear whether low dose COCs confer protective effects to the same level.

• *Breast cancer*

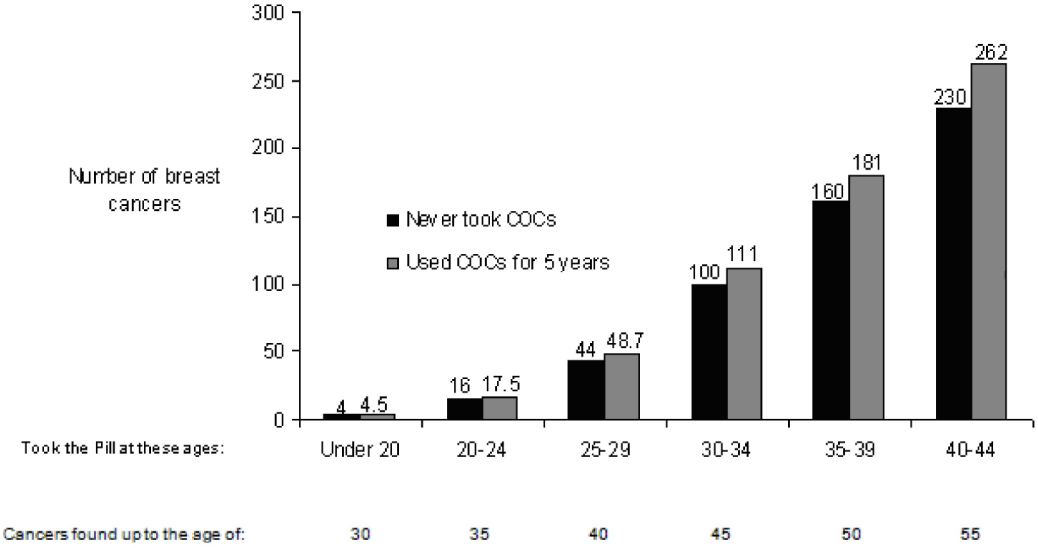
A meta-analysis from 54 epidemiological studies reported that there is a slightly increased relative risk (RR = 1.24) of having breast cancer diagnosed in women who are currently using combined oral contraceptives (COCs). The observed pattern of increased risk may be due to an earlier diagnosis of breast cancer in COC users, the biological effects of COCs or a combination of both. The additional breast cancers diagnosed in current users of COCs or in women who have used COCs in the last ten years are more likely to be localised to the breast than those in women who never used COCs.

Breast cancer is rare among women under 40 years of age whether or not they take COCs. Whilst this background risk increases with age, the excess number of breast cancer diagnoses in current and recent COC users is small in relation to the overall risk of breast cancer (see bar chart).

The most important risk factor for breast cancer in COC users is the age women discontinue the COC; the older the age at stopping, the more breast cancers are diagnosed. Duration of use is less important and the excess risk gradually disappears during the course of the 10 years after stopping COC use such that by 10 years there appears to be no excess.

The possible increase in risk of breast cancer should be discussed with the user and weighed against the benefits of COCs taking into account the evidence that they offer substantial protection against the risk of developing certain other cancers (e.g. ovarian and endometrial cancer).

Estimated cumulative numbers of breast cancers per 10,000 women diagnosed in 5 years of use and up to 10 years after stopping COCs, compared with numbers of breast cancers diagnosed in 10,000 women who had never used COCs



• *Cervical Cancer*

The most important risk factor for cervical cancer is persistent HPV infection. Some epidemiological studies have indicated that long-term use of COCs may further contribute to this increased risk but there continues to be controversy about the extent to which this finding is attributable to confounding effects, e.g., cervical screening and sexual behaviour including use of barrier contraceptives.

• *Liver Cancer*

In rare cases benign and, in even rarer cases, malignant liver tumours leading in isolated cases to life-threatening intra-abdominal haemorrhage have been observed after the use of hormonal substances such as those contained in Microgynon 30 ED. If severe upper abdominal complaints, liver enlargement or signs of intra-abdominal haemorrhage occur, the possibility of a liver tumour should be included in the differential diagnosis.

Other conditions

The possibility cannot be ruled out that certain chronic diseases may occasionally deteriorate during the use of combined oral contraceptives.

• *Known hyperlipidaemias*

Women with hypertriglyceridemia, or a family history thereof, may be at an increased risk of pancreatitis when using COCs.

Women with hyperlipidaemias are at an increased risk of arterial disease (see section 4.4 'Circulatory disorders'). However routine screening of women on COCs is not appropriate.

• *Blood pressure*

Hypertension is a risk factor for stroke and myocardial infarction (see section 4.4 'Arterial thromboembolic-related conditions'). Although small increases in blood pressure have been reported in many women taking COCs, clinically relevant increases are rare. However, if sustained hypertension develops during the use of a COC, antihypertensive treatment should normally be instigated at a level of 160/100 mm Hg in uncomplicated patients or at 140/90 mm Hg in those with target organ damage,

established cardiovascular disease, diabetes or with increased cardiovascular risk factors. Decisions about the continued use of the COC should be made at lower BP levels, and alternative contraception may be advised.

• *Conditions which deteriorate in pregnancy or during previous COC use*

The following conditions have been reported to occur or deteriorate with both pregnancy and COC use. Consideration should be given to stopping Microgynon 30 ED if any of the following occur during use:

• jaundice and/or pruritus related to cholestasis

• COCs may increase the risk of gallstone formation and may worsen existing disease.

• systemic lupus erythematosus

• herpes gestationis

• otosclerosis-related hearing loss

• sickle cell anaemia

• renal dysfunction

• hereditary angioedema

• any other condition an individual woman has experienced worsening of during pregnancy or previous use of COCs.

• *Disturbances of liver function*

Acute or chronic disturbances of liver function may necessitate the discontinuation of COC use until markers of liver function return to normal. Recurrence of cholestatic jaundice and/or cholestasis-related pruritus which occurred during pregnancy or previous use of sex steroids necessitates the discontinuation of COCs.

• *Diabetes (without vascular involvement*)

Insulin-dependent diabetics without vascular disease can use COCs. However it should be remembered that all diabetics are at an increased risk of arterial disease and this should be considered when prescribing COCs. Diabetics with existing vascular disease are contraindicated from using COCs (see section 4.3 Contraindications).

Although COCs may have an effect on peripheral insulin resistance and glucose tolerance, there is no evidence for a need to alter the therapeutic regimen in diabetics using low-dose COCs (containing < 0.05 mg ethinylestradiol). However, diabetic women should be carefully observed while taking COCs.

• *Chloasma*

Chloasma may occasionally occur, especially in women with a history of chloasma gravidarum. Women with a tendency to chloasma should avoid exposure to the sun or ultraviolet radiation whilst taking COCs.

• *Menstrual Changes*

Reduction of menstrual flow: This is not abnormal and it is to be expected in some patients. Indeed, it may be beneficial where heavy periods were previously experienced.

Missed menstruation: Occasionally, withdrawal bleeding may not occur at all. If the tablets have been taken correctly, pregnancy is very unlikely. If withdrawal bleeding fails to occur at the end of a second pack, the possibility of pregnancy must be ruled out before resuming with the next pack.

Intermenstrual bleeding: Irregular bleeding (spotting or breakthrough bleeding) may occur especially during the first months of use. Therefore, the evaluation of any irregular bleeding is only meaningful after an adaptation interval of about three cycles. If bleeding irregularities persist or occur after previously regular cycles, then non-hormonal causes should be considered and adequate diagnostic measures are indicated to exclude malignancy or pregnancy. This may include curettage.

Some women may experience amenorrhoea or oligomenorrhoea after discontinuation of oral contraceptives, especially when these conditions existed prior to use. Women should be informed of this possibility.

• *Lactose and Sucrose Intolerance*

Each tablet of this medicinal product contains 32.97 mg lactose and 19.371 mg sucrose per tablet. Each placebo tablet contains 48.25 mg lactose and 33.98 mg sucrose per tablet. Patients with rare hereditary problems of galactose intolerance, the Lapp lactase deficiency, fructose intolerance or glucose-galactose malabsorption or sucrase-isomaltase should not take this medicine.

• *Reduced efficacy*

The efficacy of COCs may be reduced, in the event of missed tablets vomiting or diarhhoea or concomitant medication.

4.5 Interaction with other medicinal products and other forms of interaction

• Interactions

Hepatic enzyme inducers

Drugs which induce hepatic enzymes (especially cytochrome P450 3A4) increase the metabolism of contraceptive steroids and hence may result in breakthrough bleeding and pregnancy. The following have been shown to have clinically important interactions with COCs:

Antiretroviral agents

• ritonavir;

• nelfinavir;

• nevirapine.

Anticonvulsants

• barbiturates (including phenobarbitone);

• primidone;

• phenytoin;-

• carbamazepine;

• oxcarbazepine;

• topiramate.

Antibiotics/antifungals

• griseofulvin;

• rifampacin.

Herbal remedies

• St John's wort (*Hypericum perforatum*)

Managing interactions with hepatic enzyme inducers

Since interactions of enzyme inducers, including the antibiotics rifampicin and griseofulvin, with oral contraceptives may lead to breakthrough bleeding and/or contraceptive failure the following precautions are recommended:

Women on short term treatment with any of these drugs should temporarily use a barrier method in addition to the COC or choose another method of contraception. With microsomal enzyme-inducing drugs, such as rifampicin and griseofulvin, the barrier method should be used during the time of concomitant drug administration and for 28 days after their discontinuation.

For women receiving long-term therapy with hepatic enzyme inducers, another method of contraception should be used.

Non-enzyme inducing antibiotics

Some clinical reports suggest that enterohepatic circulation of oestrogens may decrease when certain antibiotic agents are given, which may reduce ethinylestradiol concentrations (e.g. *penicillins, tetracycline*s).

Managing interactions with non-enzyme inducing antibiotics

Since interactions of some antibiotics with oral contraceptives may lead to breakthrough bleeding and/or contraceptive failure the following precautions are recommended:

Women on short term treatment with antibiotics (except rifampicin and griseofulvin) should temporarily use a barrier method in addition to the COC or choose another method of contraception. If the barrier method is chosen it should be used until 7 days after discontinuation of the antibiotics. If these 7 days extend beyond the last active (small) tablet, the user should finish taking all the active tablets, discard the placebo (large) tablets and start a new pack of Microgynon 30 ED the next day with an appropriate active (small) tablet. In this situation, a withdrawal bleed should not be expected until the end of the second pack. If the patient does not have a withdrawal bleed during the tablet-free interval following the end of the second pack, the possibility of pregnancy must be ruled out before resuming with the next pack.

Effects on other drugs

Oral contraceptives may affect the metabolism of certain other drugs. Accordingly, plasma and tissue concentrations may either increase (e.g. cyclosporin) or decrease (e.g. lamotrigine).

Note: The prescribing information of concomitant medications should be consulted to identify potential interactions.

• Laboratory tests

The use of oral contraceptives may influence the results of certain laboratory tests including biochemical parameters of liver, thyroid, adrenal and renal function, plasma levels of carrier proteins, e.g. corticosteroid binding globulin and lipid/lipoprotein fractions, parameters of carbohydrate metabolism and parameters of coagulation and fibrinolysis. Laboratory staff should therefore be informed about oral contraceptive use when laboratory tests are requested.

4.6 Pregnancy and lactation

Microgynon 30 ED is not indicated during pregnancy. If pregnancy occurs during treatment with Microgynon 30 ED, further intake must be stopped. However, extensive epidemiological studies have revealed neither an increased risk of birth defects in children born to women who used COCs prior to pregnancy, nor a teratogenic effect when COCs were taken inadvertently during early pregnancy.

The use of Microgynon 30 ED during lactation may lead to a reduction in the volume of milk produced and to a change in its composition. Minute amounts of the active substances are excreted with the milk. These amounts may affect the child particularly in the first 6 weeks post-partum. Mothers who are breast-feeding may be advised instead to use another method of contraception.

4.7 Effects on ability to drive and use machines

Ethinylestradiol / levonorgestrel has no effects or negligible influence on the ability to drive and use machines.

4.8 Undesirable effects

The following adverse events have been reported during use of ethinylestradiol / levonorgestrel:

System Organ Class	**Adverse events reported in clinical trials**			**Adverse events reported post marketing**
	Common (≥ 1/100)	**Uncommon** (≥ 1/1000, <1/100)	**Rare** (< 1/1000)	
Eye disorders			contact lens intolerance	
Gastrointestinal disorders	nausea, abdominal pain	vomiting, diarrhea		
Immune system disorders			hypersensitivity	exacerbation of hereditary angioedema
Investigations	weight increased		weight decreased	
Metabolism and nutrition disorders		fluid retention		Hypertriglyceridemia
Nervous system disorders	headache	migraine		exacerbation of chorea
Gastrointestinal disorders				Crohn's disease, ulcerative colitis
Hepatobiliary disorders				liver function disturbances
Psychiatric disorders	depressed mood, mood altered	libido decreased	libido increased	
Reproductive system and breast disorders	breast pain, breast tenderness	breast hypertrophy	vaginal discharge, breast discharge	reduced menstrual flow, spotting, breakthrough bleeding and missed withdrawal bleeding, post pill amenorrhoea
Skin and subcutaneous tissue disorders		rash, urticaria	erythema nodosum, erythema multiforme	chloasma,

The following serious adverse events have been reported in women using COCs, which are discussed in section 4.4 'Special warnings and precautions for use':

• Venous thromboembolic disorders

• Arterial thromboembolic disorders

• Strokes (e.g. transient ischemic attack, ischemic stroke, haemorrhagic stroke)

• Hypertension

• Liver tumours (benign and malignant)

The frequency of diagnosis of breast cancer is very slightly increased among OC users. As breast cancer is rare in women under 40 years of age the excess number is small in relation to the overall risk of breast cancer. Causation with COC use is unknown. For further information, see sections 4.3 'Contraindications' and 4.4 'Special warnings and precautions for use.

Conditions reported to deteriorate with pregnancy or previous COC use

Jaundice and/or pruritus related to cholestasis; gallstone formation; systemic lupus erythematosus; herpes gestationis; otosclerosis-related hearing loss; sickle cell anaemia; renal dysfunction; hereditary angioedema; porphyria; cervical cancer

Changes in glucose tolerance or effect on peripheral insulin resistance have been reported in women using COCs (see section 4.4).

4.9 Overdose

There have been no reports of serious effects from overdose. Overdosage may cause nausea, vomiting and, in females, withdrawal bleeding.

There are no specific antidotes and treatment should be symptomatic.

5. Pharmacological properties

5.1 Pharmacodynamic properties

Microgynon 30 ED is an oestrogen-progestogen combination which acts by inhibiting ovulation by suppression of the mid-cycle surge of luteinizing hormone, the inspissation of cervical mucus so as to constitute a barrier to sperm, and the rendering of the endometrium unreceptive to implantation.

5.2 Pharmacokinetic properties

Levonorgestrel

Levonorgestrel is absorbed quickly and completely. Maximum active substance levels of approx. 3 ng/ml were reached in serum just one hour after ingestion of Microgynon 30 ED. The serum concentrations subsequently fell in 2 phases with half-lives of around 0.5 hours and 20 hours. The metabolic clearance rate from plasma is approx. 1.5 ml/min/kg.

Levonorgestrel is eliminated not in unchanged form, but in the form of metabolites with a half-life of around one day and in almost equal proportions via the kidney and bile. Biotransformation takes place via the familiar pathways of steroid metabolism. There are no known pharmacologically active products of metabolism.

Levonorgestrel is bound to serum albumin and SHBG. Only around 1.5% of the respective total concentration is present in unbound form, while approx. 65% is bound to SHBG. The relative proportions (free, albumin-bound, SHBG-bound) depend on the concentration of SHBG. After induction of the binding protein, the portion bound to SHBG increases, while the free portion and that bound to albumin decreases.

After daily repeated ingestion, levonorgestrel accumulates by about the factor 2. A steady state is reached during the second half of the treatment cycle. The pharmacokinetics of levonorgestrel are dependent on the concentration of SHBG in plasma. Under treatment with Microgynon 30 ED, an increase in the serum levels of SHBG effect a concomitant increase in the specific binding capacity and therefore also an increase in levonorgestrel serum levels.

The levonorgestrel serum levels do not change any further after 1 - 3 cycles of use owing to the fact that SHBG induction is concluded. Compared to a single administration, 3 - 4 fold higher levonorgestrel serum levels are reached in the steady state.

The absolute bioavailability of levonorgestrel amounts to almost 100%.

Approx. 0.1% of the maternal dose can be passed on to a baby with the breast milk.

Ethinylestradiol

Orally administered ethinylestradiol is absorbed quickly and completely. Ingestion of Microgynon 30 ED leads to maximum plasma levels of approx. 100 pg/ml after 1 - 2 hours. The substance concentration then falls in 2 phases for which half-lives of around 1 - 2 hours and about 20 hours have been determined. For technical reasons, these data can only be calculated at higher dosages.

An imaginary distribution volume of around 5 l/kg and a metabolic clearance rate from plasma of approx. 5 ml/min/kg have been determined for ethinylestradiol. Ethinylestradiol is bound non-specifically to serum albumin to the extent of 98%.

Ethinylestradiol is metabolised even during its absorption phase and during its first liver transit, leading to reduced and individually varying oral bioavailability. Ethinylestradiol is eliminated not in unchanged form, but in the form of metabolites with a half-life of around one day. The excretion ratio is 40 (urine) : 60 (bile).

Because of the half-life of the terminal elimination phase from plasma, a steady state characterised by a 30 - 40% higher plasma substance level becomes established after approx. 5 - 6 daily administrations.

The absolute bioavailability of ethinylestradiol is subject to considerable interindividual variations. After oral ingestion, it amounts to around 40 - 60% of the dose.

In women with fully established lactation, around 0.02% of the maternal dose can be passed on to the baby with the breast milk.

Other drugs can have a negative or positive effect on the systemic availability of ethinylestradiol. No interaction with vitamin C takes place. On continuous use, ethinylestradiol induces the hepatic synthesis of CBG and SHBG, the extent of SHBG induction being dependent on the type and dose of the simultaneously administered progestogen.

5.3 Preclinical safety data

There is no preclinical safety data which could be of relevance to the prescriber and which are not already included in other relevant sections of the SPC.

6. Pharmaceutical particulars

6.1 List of excipients

Active tablets	Placebo tablets
lactose	lactose
maize starch	maize starch
povidone	povidone
magnesium stearate (E 572)	magnesium stearate (E 572)
sucrose	sucrose
polyethylene glycol 6000	polyethylene glycol 6000
calcium carbonate (E 170)	calcium carbonate (E 170)
talc	talc
montan glycol wax	montan glycol wax
titanium dioxide (E 171)	
ferric oxide pigment yellow (E 172)	
glycerin (E 422)	

6.2 Incompatibilities

None known.

6.3 Shelf life

5 years.

6.4 Special precautions for storage

Not applicable.

6.5 Nature and contents of container

Deep drawn strips made of polyvinyl chloride film with counter-sealing foil made of aluminium with heat sealable coating.

Presentation:

Each carton contains either 1 or 3 blister memo-packs. Each blister memo-pack contains 21 active tablets and 7 placebo tablets.

6.6 Special precautions for disposal and other handling

No special requirements.

7. Marketing authorisation holder

Bayer plc

Bayer House

Strawberry Hill

Newbury

Berkshire

RG14 1JA

8. Marketing authorisation number(s)

PL 00010/0546

9. Date of first authorisation/renewal of the authorisation

12 June 1996 / 8 December 2008

10. Date of revision of the text

25 September 2012