

# **CENTER FOR DRUG EVALUATION AND RESEARCH**

***APPLICATION NUMBER:***

**ANDA 090095**

**LABELING**

## HIGHLIGHTS OF PRESCRIBING INFORMATION

**These highlights do not include all the information needed to use dutasteride capsules safely and effectively. See full prescribing information for dutasteride capsules.**

### Dutasteride capsules for oral use

#### Initial U.S. Approval: 2001

----- **RECENT MAJOR CHANGES** -----  
Indications and Usage, Combination With Alpha-Blocker (1.2) 6/2008  
Dosage and Administration, Combination With Alpha-Blocker (2.2) 6/2008

----- **INDICATIONS AND USAGE** -----  
Dutasteride, a 5 $\alpha$ -reductase inhibitor, is indicated for the treatment of symptomatic benign prostatic hyperplasia (BPH) in men with an enlarged prostate to: (1.1)

- improve symptoms,
- reduce the risk of acute urinary retention, and
- reduce the risk of the need for BPH-related surgery.

#### -- DOSAGE AND ADMINISTRATION --

Monotherapy: 0.5 mg once daily. (2.1)  
Dosing considerations: Swallow whole. May take with or without food. (2)

----- **DOSAGE FORMS AND STRENGTHS** -----  
0.5-mg capsules (3)

#### ----- CONTRAINDICATIONS -----

- Pregnancy and women of childbearing potential. (4, 5.1, 8.1)
- Pediatric patients. (4)

- Patients with previously demonstrated, clinically significant hypersensitivity (e.g., serious skin reactions, angioedema) to dutasteride or other 5 $\alpha$ -reductase inhibitors. (4)

#### -- WARNINGS AND PRECAUTIONS --

- Women who are pregnant or may become pregnant should not handle dutasteride capsules. (5.1, 8.1)
- Patients should be assessed to rule out other urological diseases, including prostate cancer, prior to prescribing dutasteride. (5.2)
- Dutasteride reduces total serum prostate-specific antigen concentration by approximately 50%. (5.3)
- Patients should not donate blood until 6 months after their last dose. (5.4)

#### ----- ADVERSE REACTIONS -----

The most common adverse reactions, reported in  $\geq$ 1% of patients treated with dutasteride and more commonly than in patients treated with placebo, are impotence, decreased libido, ejaculation disorders, and breast disorders. (6.1)

**To report SUSPECTED ADVERSE REACTIONS, contact TEVA USA, PHARMACOVIGILANCE at tel: 1-888-838-2872, X6351 or drug\_safety@tevausa.com; or FDA at 1-800-FDA-1088 or www.fda.gov/medwatch**

----- **DRUG INTERACTIONS** -----  
Use with caution in patients taking potent, chronic CYP3A4 enzyme inhibitors (e.g., ritonavir). (7)

**See 17 for PATIENT COUNSELING INFORMATION and FDA-approved patient labeling.**

Revised: 4/2010

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## FULL PRESCRIBING INFORMATION

### 1 INDICATIONS AND USAGE

#### 1.1 Monotherapy

Dutasteride Capsules are indicated for the treatment of symptomatic benign prostatic hyperplasia (BPH) in men with an enlarged prostate to:

- improve symptoms,
- reduce the risk of acute urinary retention (AUR), and
- reduce the risk of the need for BPH-related surgery.

### 2 DOSAGE AND ADMINISTRATION

The capsules should be swallowed whole and not chewed or opened, as contact with the capsule contents may result in irritation of the oropharyngeal mucosa. Dutasteride may be administered with or without food.

#### 2.1 Monotherapy

The recommended dose of dutasteride is 1 capsule (0.5 mg) taken once daily.

#### 2.2 Dosage Adjustment in Specific Populations

No dose adjustment is necessary for patients with renal impairment or for the elderly [see *Clinical Pharmacology* (12.3)]. Due to the absence of data in patients with hepatic impairment, no dosage recommendation can be made [see *Specific Populations* (8.7) and *Clinical Pharmacology* (12.3)].

### 3 DOSAGE FORMS AND STRENGTHS

0.5 mg, yellow, opaque capsule filled with clear solution imprinted with stylized b1103 in black ink.

### 4 CONTRAINDICATIONS

Dutasteride is contraindicated for use in:

- Pregnancy. Dutasteride inhibits the activity of 5 $\alpha$ -reductase, which prevents conversion of testosterone to dihydrotestosterone, a hormone necessary for normal development of male genitalia. In animal reproduction and developmental toxicity studies, dutasteride inhibited development of male fetus external genitalia. Therefore, Dutasteride may cause fetal harm when administered to a pregnant woman. If dutasteride is used during pregnancy or if the patient becomes pregnant while taking dutasteride, the patient should be apprised of the potential hazard to the fetus [see *Warnings and Precautions* (5.1), *Use in Specific Populations* (8.1)].
- Women of childbearing potential [see *Warnings and Precautions* (5.1), *Use in Specific Populations* (8.1)].
- Pediatric patients [see *Use in Specific Populations* (8.4)].
- Patients with previously demonstrated, clinically significant hypersensitivity (e.g., serious skin reactions, angioedema) to dutasteride or other 5 $\alpha$ -reductase inhibitors.

### 5 WARNINGS AND PRECAUTIONS

#### 5.1 Exposure of Women—Risk to Male Fetus

Dutasteride Capsules should not be handled by a woman who is pregnant or who may become pregnant. Dutasteride is absorbed through the skin and could result in unintended fetal exposure. If a woman who is pregnant or who may become pregnant comes in contact with leaking dutasteride capsules, the contact area should be washed immediately with soap and water [see *Use in Specific Populations* (8.1)].

#### 5.2 Evaluation for Other Urological Diseases

Lower urinary tract symptoms of BPH can be indicative of other urological diseases, including prostate cancer. Patients should be assessed to rule out prostate cancer and other urological diseases prior to treatment with dutasteride and periodically thereafter. Patients with a large residual urinary volume and/or severely diminished urinary flow may not be good candidates for 5 $\alpha$ -reductase inhibitor therapy and should be carefully monitored for obstructive uropathy.

### 5.3 Effects on Prostate-Specific Antigen (PSA) and the Use of PSA in Prostate Cancer Detection

Dutasteride reduces total serum PSA concentration by approximately 40% following 3 months of treatment and by approximately 50% following 6, 12, and 24 months of treatment. This decrease is predictable over the entire range of PSA values, although it may vary in individual patients. Therefore, for interpretation of serial PSAs in a man taking dutasteride, a new baseline PSA concentration should be established after 3 to 6 months of treatment, and this new value should be used to assess potentially cancer-related changes in PSA. To interpret an isolated PSA value in a man treated with dutasteride for 6 months or more, the PSA value should be doubled for comparison with normal values in untreated men.

The free-to-total PSA ratio (percent free PSA) remains constant at Month 12, even under the influence of dutasteride. If clinicians elect to use percent free PSA as an aid in the detection of prostate cancer in men receiving dutasteride, no adjustment to its value appears necessary.

#### 5.4 Blood Donation

Men being treated with dutasteride should not donate blood until at least 6 months have passed following their last dose. The purpose of this deferred period is to prevent administration of dutasteride to a pregnant female transfusion recipient.

#### 5.5 Effect on Semen Characteristics

The effects of dutasteride 0.5 mg/day on semen characteristics were evaluated in normal volunteers aged 18 to 52 (n = 27 dutasteride, n = 23 placebo) throughout 52 weeks of treatment and 24 weeks of post-treatment follow-up. At 52 weeks, the mean percent reduction from baseline in total sperm count, semen volume, and sperm motility were 23%, 26%, and 18%, respectively, in the dutasteride group when adjusted for changes from baseline in the placebo group. Sperm concentration and sperm morphology were unaffected. After 24 weeks of follow-up, the mean percent change in total sperm count in the dutasteride group remained 23% lower than baseline. While mean values for all semen parameters at all time-points remained within the normal ranges and did not meet predefined criteria for a clinically significant change (30%), 2 subjects in the dutasteride group had decreases in sperm count of greater than 90% from baseline at 52 weeks, with partial recovery at the 24-week follow-up. The clinical significance of dutasteride's effect on semen characteristics for an individual patient's fertility is not known.

### 6 ADVERSE REACTIONS

#### 6.1 Clinical Trials Experience

Because clinical trials are conducted under widely varying conditions, adverse reaction rates observed in the clinical trials of a drug cannot be directly compared to rates in the clinical trial of another drug and may not reflect the rates observed in practice.

- The most common adverse reactions reported in subjects receiving dutasteride were impotence, decreased libido, breast disorders (including breast enlargement and tenderness), and ejaculation disorders.
- Study withdrawal due to adverse reactions occurred in 4% of subjects receiving dutasteride and 3% of subjects receiving placebo. The most common adverse reaction leading to study withdrawal was impotence (1%).

Over 4,300 male subjects with BPH were randomly assigned to receive placebo or 0.5-mg daily doses of dutasteride in 3 identical 2-year, placebo-controlled, double-blind, Phase 3 treatment studies, each with 2-year open-label extensions. During the double-blind treatment period, 2,167 male subjects were exposed to dutasteride, including 1,772 exposed for 1 year and 1,510 exposed for 2 years. When including the open-label extensions, 1,009 male subjects were exposed to dutasteride for 3 years and 812 were exposed for 4 years. The population was aged 47 to 94 years (mean age, 66 years) and greater than 90% Caucasian. Table 1 summarizes clinical adverse reactions reported in at least 1% of subjects receiving dutasteride and at a higher incidence than subjects receiving placebo.

**Table 1. Adverse Reactions Reported in  $\geq$ 1% of Subjects Over a 24-Month Period and More Frequently in the Group Receiving Dutasteride Than the Placebo Group (Randomized, Double-Blind, Placebo-Controlled Studies Pooled) by Time of Onset**

Adverse Reactions	Adverse Reaction Time of Onset			
	Month 0-6 (n = 2,167) (n = 2,158)	Month 7-12 (n = 1,901) (n = 1,922)	Month 13-18 (n = 1,725) (n = 1,714)	Month 19-24 (n = 1,605) (n = 1,555)
Impotence				
Dutasteride	4.7%	1.4%	1.0%	0.8%
Placebo	1.7%	1.5%	0.5%	0.9%
Decreased libido				
Dutasteride	3.0%	0.7%	0.3%	0.3%
Placebo	1.4%	0.6%	0.2%	0.1%
Ejaculation disorders				
Dutasteride	1.4%	0.5%	0.5%	0.1%
Placebo	0.5%	0.3%	0.1%	0.0%
Breast disorders*				
Dutasteride	0.5%	0.8%	1.1%	0.6%
Placebo	0.2%	0.3%	0.3%	0.1%

\* Includes breast tenderness and breast enlargement.

*Long-Term Treatment (Up to 4 Years):* There is no evidence of increased drug-related sexual adverse reactions (impotence, decreased libido, and ejaculation disorder) or breast disorders with increased duration of treatment. The relationship between long-term use of dutasteride and male breast neoplasia is currently unknown.

Adverse reaction information over the first 2 years of treatment is presented below. The population was aged 49 to 88 years (mean age, 66 years) and 88% Caucasian. Table 2 summarizes adverse reactions reported in at least 1% of subjects.

**Table 2. Adverse Reactions Reported Over a 24-Month Period in  $\geq$ 1% of Subjects by Time of Onset**

Adverse Reactions	Adverse Reaction Time of Onset			
	Month 0-6 (n = 1,623)	Month 7-12 (n = 1,547)	Month 13-18 (n = 1,457)	Month 19-24 (n = 1,378)
Impotence	3.9%	1.2%	0.6%	0.7%
Decreased libido	3.3%	0.6%	0.7%	0.2%
Ejaculation disorders	1.1%	0.6%	0.7%	0.1%
Breast disorders†	0.9%	1.0%	0.8%	0.5%
Dizziness	0.4%	0.2%	<0.1%	<0.1%

† Includes breast tenderness and breast enlargement.

#### 6.2 Postmarketing Experience

The following adverse reactions have been identified during postapproval use of dutasteride. Because these reactions are reported voluntarily from a population of uncertain size, it is not always possible to reliably estimate their frequency or establish a causal relationship to drug exposure. These reactions have been chosen for inclusion due to a combination of their seriousness, frequency of reporting, or potential causal connection to dutasteride.

**Immune System Disorders:** Hypersensitivity reactions, including rash, pruritus, urticaria, localized edema, serious skin reactions, and angioedema.

### 7 DRUG INTERACTIONS

#### 7.1 Cytochrome P450 3A Inhibitors

Dutasteride is extensively metabolized in humans by the CYP3A4 and CYP3A5 isoenzymes. The effect of potent CYP3A4 inhibitors on dutasteride has not been studied. Because of the potential for drug-drug interactions, use caution when prescribing dutasteride to patients taking potent, chronic CYP3A4 enzyme inhibitors (e.g., ritonavir) [see *Clinical Pharmacology* (12.3)].

#### 7.2 Alpha-Adrenergic Blocking Agents

The administration of dutasteride in combination with terazosin has not effect on the steady-state pharmacokinetics of the alpha-adrenergic blocker. The effect of administration of terazosin on dutasteride pharmacokinetic parameters has not been evaluated.

### 7.3 Calcium Channel Antagonists

Coadministration of verapamil or diltiazem decreases dutasteride clearance and leads to increased exposure to dutasteride. The change in dutasteride exposure is not considered to be clinically significant. No dose adjustment is recommended [see *Clinical Pharmacology* (12.3)].

#### 7.4 Cholestyramine

Administration of a single 5-mg dose of dutasteride followed 1 hour later by 12 g of cholestyramine does not affect the relative bioavailability of dutasteride [see *Clinical Pharmacology* (12.3)].

#### 7.5 Digoxin

Dutasteride does not alter the steady-state pharmacokinetics of digoxin when administered concomitantly at a dose of 0.5 mg/day for 3 weeks [see *Clinical Pharmacology* (12.3)].

#### 7.6 Warfarin

Concomitant administration of dutasteride 0.5 mg/day for 3 weeks with warfarin does not alter the steady-state pharmacokinetics of the S- or R-warfarin isomers or alter the effect of warfarin on prothrombin time [see *Clinical Pharmacology* (12.3)].

### 8 USE IN SPECIFIC POPULATIONS

#### 8.1 Pregnancy

Pregnancy Category X. [See *Contraindications* (4)]. Dutasteride is contraindicated for use in women of childbearing potential and during pregnancy. Dutasteride is a 5 $\alpha$ -reductase inhibitor that prevents conversion of testosterone to dihydrotestosterone (DHT), a hormone necessary for normal development of male genitalia. In animal reproduction and developmental toxicity studies, dutasteride inhibited normal development of external genitalia in male fetuses. Therefore, dutasteride may cause fetal harm when administered to a pregnant woman. If dutasteride is used during pregnancy or if the patient becomes pregnant while taking dutasteride, the patient should be apprised of the potential hazard to the fetus.

Abnormalities in the genitalia of male fetuses is an expected physiological consequence of inhibition of the conversion of testosterone to 5 $\alpha$ -dihydrotestosterone (DHT) by 5 $\alpha$ -reductase inhibitors. These results are similar to observations in male infants with genetic 5 $\alpha$ -reductase deficiency. Dutasteride is absorbed through the skin. To avoid potential fetal exposure, women who are pregnant or may become pregnant should not handle dutasteride capsules. If contact is made with leaking capsules, the contact area should be washed immediately with soap and water. Dutasteride is secreted into male semen. The highest measured semen concentration of dutasteride in treated men was 14 ng/mL. Assuming exposure of a 50-kg woman to 5 mL of semen and 100% absorption, the woman's dutasteride concentration would be about 0.175 ng/mL. This concentration is more than 100 times less than concentrations producing abnormalities of male genitalia in animal studies. Dutasteride is highly protein bound in human semen (>96%), [see *Warnings and Precautions* (5.1)].

In an embryo-fetal development study in female rats, oral administration of dutasteride at doses 10 times less than the maximum recommended human dose (MRHD) resulted in abnormalities of male genitalia in the fetus, and nipple development, hypospadias, and distended preputial glands in male offspring. An increase in stillborn pups was observed at 111 times the MRHD, and reduced fetal body weight was observed at doses  $\geq$ 15 times the MRHD. Increased incidences of skeletal variations considered to be delays in ossification associated with reduced body weight were observed at doses  $\geq$ 56 times the MRHD. Abnormalities of male genitalia were also observed in an oral pre- and post-natal developmental study in rats and in 2 embryo-fetal studies in rabbits at one-third the MRHD.

In an embryo-fetal development study, pregnant rhesus monkeys were exposed intravenously to a dutasteride blood level comparable to the dutasteride concentration found in human semen. The development of male external genitalia of monkey offspring was not adversely affected. Reduction of fetal adrenal weights, reduction in fetal prostate weights, and increases in fetal ovarian and testis weights were observed in monkeys [see *Nonclinical Toxicology* (13.3)].

#### 8.2 Nursing Mothers

Dutasteride should not be used by nursing women. It is not known whether dutasteride is excreted in human milk.

#### 8.4 Pediatric Use

Dutasteride is contraindicated for use in pediatric patients. Safety and effectiveness in pediatric patients have not been established.

#### 8.5 Geriatric Use

Of 2,167 male subjects treated with dutasteride in 3 clinical studies, 60% were 65 and over and 15% were 75 and over. No overall differences in safety or efficacy were observed between these subjects and younger subjects. Other reported clinical experience has not identified differences in responses between the elderly and younger patients [see *Clinical Pharmacology* (12.3)].

#### 8.6 Renal Impairment

No dose adjustment is necessary for dutasteride in patients with renal impairment [see *Clinical Pharmacology* (12.3)].

#### 8.7 Hepatic Impairment

The effect of hepatic impairment on dutasteride pharmacokinetics has not been studied. Because dutasteride is extensively metabolized, exposure could be higher in hepatically impaired patients. However, in a clinical study where 60 subjects received 5 mg (10 times the therapeutic dose) daily for 24 weeks, no additional adverse events were observed compared with those observed at the therapeutic dose of 0.5 mg [see *Clinical Pharmacology* (12.3)].

### 10 OVERDOSAGE

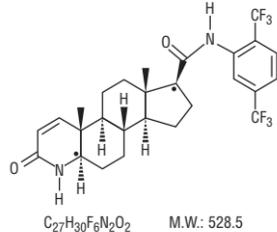
In volunteer studies, single doses of dutasteride up to 40 mg (80 times the therapeutic dose) for 7 days have been administered without significant safety concerns. In a clinical study, daily doses of 5 mg (10 times the therapeutic dose) were administered to 60 subjects for 6 months with no additional adverse effects to those seen at therapeutic doses of 0.5 mg.

There is no specific antidote for dutasteride. Therefore, in cases of suspected overdose symptomatic and supportive treatment should be given as appropriate, taking the long half-life of dutasteride into consideration.

### 11 DESCRIPTION

Dutasteride is a synthetic 4-azasteroid compound that is a selective inhibitor of both the type 1 and type 2 isoforms of steroid 5 $\alpha$ -reductase, an intracellular enzyme that converts testosterone to 5 $\alpha$ -dihydrotestosterone (DHT).

Dutasteride is chemically designated as (5 $\alpha$ ,17 $\beta$ )-N-(2,5 bis(trifluoromethyl) phenyl)-3-oxo-4-azaandrost-1-ene-17-carboxamide. The structural formula is as follows:



Dutasteride is a white to pale yellow powder with a melting point of 242° to 250°C. It is soluble in ethanol (44 mg/mL), methanol (64 mg/mL), and polyethylene glycol 400 (3 mg/mL), but it is insoluble in water.

Each dutasteride capsule, for oral administration, contains 0.5 mg of dutasteride. In addition each capsule contains the following inactive ingredients: ammonium hydroxide, black iron oxide, butylated hydroxytoluene, gelatin, glycerin, lecithin, medium-chain triglycerides, mono- and di-glycerides of capric and caprylic acids, propylene glycol, shellac glaze, talc, titanium dioxide and yellow iron oxide.

### 12 CLINICAL PHARMACOLOGY

#### 12.1 Mechanism of Action

Dutasteride inhibits the conversion of testosterone to dihydrotestosterone (DHT). DHT is the androgen primarily responsible for the initial development and subsequent enlargement of the prostate gland. Testosterone is converted to DHT by the enzyme 5 $\alpha$ -reductase, which exists as 2 isoforms, type 1 and type 2. The type 2 isoenzyme is primarily active in the reproductive tissues, while the type 1 isoenzyme is also responsible for testosterone conversion in the skin and liver.

Dutasteride is a competitive and specific inhibitor of both type 1 and type 2 5 $\alpha$ -reductase isoenzymes, with which it forms a stable enzyme complex. Dissociation from this complex has been evaluated under *in vitro* and *in vivo* conditions and is extremely slow. Dutasteride does not bind to the human androgen receptor.

#### 12.2 Pharmacodynamics

**Effect on 5 $\alpha$ -Dihydrotestosterone and Testosterone:** The maximum effect of daily doses of dutasteride on the reduction of DHT is dose dependent and is observed within 1 to 2 weeks. After 1 and 2 weeks of daily dosing with dutasteride 0.5 mg, median serum DHT concentrations were reduced by 85% and 90%, respectively. In patients with BPH treated with dutasteride 0.5 mg/day for 4 years, the median decrease in serum DHT was 94% at 1 year, 93% at 2 years, and 95% at both 3 and 4 years. The median increase in serum testosterone was 19% at both 1 and 2 years, 26% at 3 years, and 22% at 4 years, but the mean and median levels remained within the physiologic range.

In patients with BPH treated with 5 mg/day of dutasteride or placebo for up to 12 weeks prior to transurethral resection of the prostate, mean DHT concentrations in prostatic tissue were significantly lower in the dutasteride group compared with placebo (784 and 5,793 pg/g, respectively, p<0.001). Mean prostatic tissue concentrations of testosterone were significantly 295 higher in the dutasteride group compared with placebo (2,073 and 93 pg/g, respectively, p<0.001).

Adult males with genetically inherited type 2 5 $\alpha$ -reductase deficiency also have decreased DHT levels. These 5 $\alpha$ -reductase deficient males have a small prostate gland throughout life and do not develop BPH. Except for the associated urogenital defects present at birth, no other clinical abnormalities related to 5 $\alpha$ -reductase deficiency have been observed in these individuals.

**Effects on Other Hormones:** In healthy volunteers, 52 weeks of treatment with dutasteride 0.5 mg/day (n = 26) resulted in no clinically significant change compared with placebo (n = 23) in sex hormone-binding globulin, estradiol, luteinizing hormone, follicle-stimulating hormone, thyroxine (free T4), and dehydroepiandrosterone. Statistically significant, baseline-adjusted mean increases compared with placebo were observed for total testosterone at 8 weeks (97.1 ng/dL, p<0.003) and thyroid-stimulating hormone at 52 weeks (0.4 mIU/mL, p<0.05). The median percentage changes from baseline within the dutasteride group were 17.9% for testosterone at 8 weeks and 12.4% for thyroid-stimulating hormone at 52 weeks. After stopping dutasteride for 24 weeks, the mean levels of testosterone and thyroid-stimulating hormone had returned to baseline in the group of subjects with available data at the visit. In patients with BPH treated with dutasteride in a large randomized, double-blind, placebo-controlled study, there was a median percent increase in luteinizing hormone of 12% at 6 months and 19% at both 12 and 24 months.

**Other Effects:** Plasma lipid panel and bone mineral density were evaluated following 52 weeks of dutasteride 0.5 mg once daily in healthy volunteers. There was no change in bone mineral density as measured by dual energy x-ray absorptiometry compared with either placebo or baseline. In addition, the plasma lipid profile (i.e., total cholesterol, low density lipoproteins, high density lipoproteins, and triglycerides) was unaffected by dutasteride. No clinically significant changes in adrenal hormone responses to ACTH stimulation were observed in a subset population (n = 13) of the 1-year healthy volunteer study.

#### 12.3 Pharmacokinetics

**Absorption:** Following administration of a single 0.5-mg dose of a capsule, time to peak serum concentrations (T<sub>max</sub>) of dutasteride occurs within 2 to 3 hours. Absolute bioavailability in 5 healthy subjects is approximately 60% (range, 40% to 94%). When the drug is administered with food, the maximum serum concentrations were reduced by 10% to 15%. This reduction is of no clinical significance.

**Distribution:** Pharmacokinetic data following single and repeat oral doses show that dutasteride has a large volume of distribution (300 to 500 L). Dutasteride is highly bound to plasma albumin (99.0%) and alpha-1 acid glycoprotein (96.6%).

In a study of healthy subjects (n = 26) receiving dutasteride 0.5 mg/day for 12 months, semen dutasteride concentrations averaged 3.4 ng/mL (range, 0.4 to 14 ng/mL) at 12 months and, similar to serum, achieved steady-state concentrations at 6 months. On average, at 12 months 11.5% of serum dutasteride concentrations partitioned into semen.

**Metabolism and Elimination:** Dutasteride is extensively metabolized in humans. *In vitro* studies showed that dutasteride is metabolized by the CYP3A4 and CYP3A5 isoenzymes. Both of these isoenzymes produced the 4'-hydroxydutasteride, 6-hydroxydutasteride, and the 6,4'-dihydroxydutasteride metabolites. In addition, the 15-hydroxydutasteride metabolite was formed by CYP3A4. Dutasteride is not metabolized *in vitro* by human cytochrome P450 isoenzymes CYP1A2, CYP2A6, CYP2B6, CYP2C8, CYP2C9, CYP2C19, CYP2D6, and CYP2E1. In human serum following dosing to steady state, unchanged dutasteride, 3 major metabol

In an oral pre- and post-natal development study in rats, dutasteride doses of 0.05, 2.5, 12.5, or 30 mg/kg/day were administered. Unequivocal evidence of feminization of the genitalia (i.e., decreased anogenital distance, increased incidence of hypospadias, nipple development) of F1 generation male offspring occurred at doses  $\geq 2.5$  mg/kg/day (14- to 90-fold the expected clinical exposure in men). At a daily dose of 0.05 mg/kg/day (0.05-fold the expected clinical exposure), evidence of feminization was limited to a small, but statistically significant, decrease in anogenital distance. Doses of 2.5 to 30 mg/kg/day resulted in prolonged gestation in the parental females and a decrease in time to vaginal patency for female offspring and a decrease in prostate and seminal vesicle weights in male offspring. Effects on newborn startle response were noted at doses greater than or equal to 12.5 mg/kg/day. Increased stillbirths were noted at 30 mg/kg/day.

In the rabbit, embryo-fetal study doses of 30, 100, and 200 mg/kg (28- to 93-fold the expected clinical exposure in men) were administered orally on days 7 to 29 of pregnancy to encompass the late period of external genitalia development. Histological evaluation of the genital papilla of fetuses revealed evidence of feminization of the male fetus at all doses. A second embryo-fetal study in rabbits at doses of 0.05, 0.4, 3.0, and 30 mg/kg/day (0.3- to 53-fold the expected clinical exposure) also produced evidence of feminization of the genitalia in male fetuses at all doses. It is not known whether rabbits or rhesus monkeys produce any of the major human metabolites.

#### 14 CLINICAL STUDIES

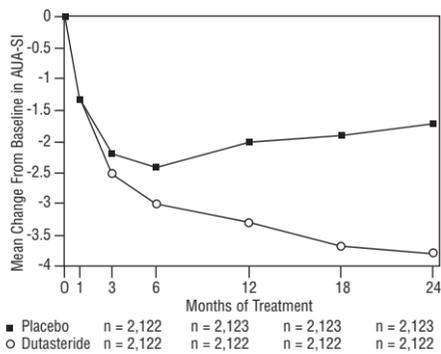
**14.1 Monotherapy**  
Dutasteride 0.5 mg/day (n = 2,167) or placebo (n = 2,158) was evaluated in male subjects with BPH in three 2-year multicenter, placebo-controlled, double-blind studies, each with 2-year open-label extensions (n = 2,340). More than 90% of the study population was Caucasian. Subjects were at least 50 years of age with a serum PSA  $\geq 1.5$  ng/mL and  $< 10$  ng/mL and BPH diagnosed by medical history and physical examination, including enlarged prostate ( $\geq 30$  cc) and BPH symptoms that were moderate to severe according to the American Urological Association Symptom Index (AUA-SI). Most of the 4,325 subjects randomly assigned to receive either dutasteride or placebo completed 2 years of double-blind treatment (70% and 67%, respectively). Most of the 2,340 subjects in the study extensions completed 2 additional years of open-label treatment (71%).

**Effect on Symptom Scores:** Symptoms were quantified using the AUA-SI, a questionnaire that evaluates urinary symptoms (incomplete emptying, frequency, intermittency, urgency, weak stream, straining, and nocturia) by rating on a 0 to 5 scale for a total possible score of 35. The baseline AUA-SI score across the 3 studies was approximately 17 units in both treatment groups.

Subjects receiving dutasteride achieved statistically significant improvement in symptoms versus placebo by Month 3 in 1 study and by Month 12 in the other 2 pivotal studies. At Month 12, the mean decrease from baseline in AUA-SI symptom scores across the 3 studies pooled was -3.3 units for dutasteride and -2.0 units for placebo with a mean difference between the 2 treatment groups of -1.3 (range, -1.1 to -1.5 units in each of the 3 studies, p<0.001) and was consistent across the 3 studies. At Month 24, the mean decrease from baseline was -3.8 units for dutasteride and -1.7 units for placebo with a mean difference of -2.1 (range, -1.9 to -2.2 units in each of the 3 studies, p<0.001). See Figure 1. The improvement in BPH symptoms seen during the first 2 years of double-blind treatment was maintained throughout an additional 2 years of open-label extension studies.

These studies were prospectively designed to evaluate effects on symptoms based on prostate size at baseline. In men with prostate volumes  $\geq 40$  cc, the mean decrease was -3.8 units for dutasteride and -1.6 units for placebo, with a mean difference between the 2 treatment groups of -2.2 at Month 24. In men with prostate volumes  $< 40$  cc, the mean decrease was -3.7 units for dutasteride and -2.2 units for placebo, with a mean difference between the 2 treatment groups of -1.5 at Month 24.

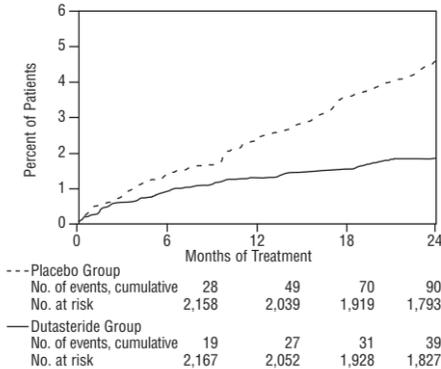
**Figure 1. AUA-SI Score\* Change from Baseline (Randomized, Double-Blind, Placebo-Controlled Studies Pooled)**



\* AUA-SI score ranges from 0 to 35.

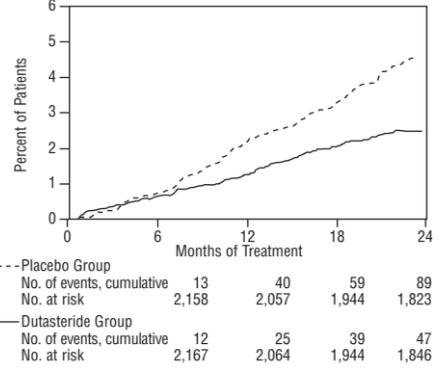
**Effect on Acute Urinary Retention and the Need for Surgery:** Efficacy was also assessed after 2 years of treatment by the incidence of AUR requiring catheterization and BPH-related urological surgical intervention. Compared with placebo, dutasteride was associated with a statistically significantly lower incidence of AUR (1.8% for dutasteride vs. 4.2% for placebo, p<0.001; 57% reduction in risk, [95% CI: 38% to 71%]) and with a statistically significantly lower incidence of surgery (2.2% for dutasteride vs. 4.1% for placebo, p<0.001; 48% reduction in risk, [95% CI: 26% to 63%]). See Figures 2 and 3.

**Figure 2. Percent of Subjects Developing Acute Urinary Retention Over a 24-Month Period (Randomized, Double-Blind, Placebo-Controlled Studies)**



--- Placebo Group	No. of events, cumulative	28	49	70	90
No. at risk	2,158	2,039	1,919	1,793	
— Dutasteride Group	No. of events, cumulative	19	27	31	39
No. at risk	2,167	2,052	1,928	1,827	

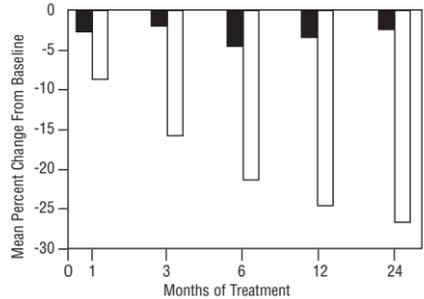
**Figure 3. Percent of Subjects Having Surgery for Benign Prostatic Hyperplasia Over a 24-Month Period (Randomized, Double-Blind, Placebo-Controlled Studies Pooled)**



**Effect on Prostate Volume:** A prostate volume of at least 30 cc measured by transrectal ultrasound was required for study entry. The mean prostate volume at study entry was approximately 54 cc.

Statistically significant differences (dutasteride versus placebo) were noted at the earliest post-treatment prostate volume measurement in each study (Month 1, Month 3, or Month 6) and continued through Month 24. At Month 12, the mean percent change in prostate volume across the 3 studies pooled was -24.7% for dutasteride and -3.4% for placebo; the mean difference (dutasteride minus placebo) was -21.3% (range, -21.0% to -21.6% in each of the 3 studies, p<0.001). At Month 24, the mean percent change in prostate volume across the 3 studies pooled was -26.7% for dutasteride and -2.2% for placebo with a mean difference of -24.5% (range, -24.0% to -25.1% in each of the 3 studies, p<0.001). See Figure 4. The reduction in prostate volume seen during the first 2 years of double-blind treatment was maintained throughout an additional 2 years of open-label extension studies.

**Figure 4. Prostate Volume Percent Change from Baseline (Randomized, Double-Blind, Placebo-Controlled Studies Pooled)**

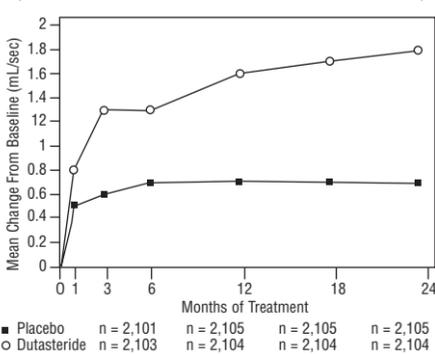


■ Placebo	n = 704	n = 645	n = 2,033	n = 2,043
□ Dutasteride	n = 702	n = 630	n = 2,020	n = 2,028

**Effect on Maximum Urine Flow Rate:** A mean peak urine flow rate ( $Q_{max}$ ) of  $\leq 15$  mL/sec was required for study entry.  $Q_{max}$  was approximately 10 mL/sec at baseline across the 3 pivotal studies.

Differences between the 2 groups were statistically significant from baseline at Month 3 in all 3 studies and were maintained through Month 12. At Month 12, the mean increase in  $Q_{max}$  across the 3 studies pooled was 1.6 mL/sec for dutasteride and 0.7 mL/sec for placebo; the mean difference (dutasteride minus placebo) was 0.8 mL/sec (range, 0.7 to 1.0 mL/sec in each of the 3 studies, p<0.001). At Month 24, the mean increase in  $Q_{max}$  was 1.8 mL/sec for dutasteride and 0.7 mL/sec for placebo, with a mean difference of 1.1 mL/sec (range, 1.0 to 1.2 mL/sec in each of the 3 studies, p<0.001). See Figure 5. The increase in maximum urine flow rate seen during the first 2 years of double-blind treatment was maintained throughout an additional 2 years of open-label extension studies.

**Figure 5.  $Q_{max}$  Change from Baseline (Randomized, Double-Blind, Placebo-Controlled Studies Pooled)**



**Summary of Clinical Studies:** Data from 3 large, well-controlled efficacy studies demonstrate that treatment with dutasteride (0.5 mg once daily) reduces the risk of both AUR and BPH-related surgical intervention relative to placebo, improves BPH-related symptoms, decreases prostate volume, and increases maximum urinary flow rates. These data suggest that dutasteride arrests the disease process of BPH in men with an enlarged prostate.

#### 16 HOW SUPPLIED/STORAGE AND HANDLING

Dutasteride Capsules 0.5 mg are oblong, yellow, opaque capsule filled with clear solution. Imprinted in black ink stylized b1103, packaged in bottles of 30

Store at 20° to 25°C (68° to 77°F) [See USP Controlled Room Temperature]. Dutasteride is absorbed through the skin. Dutasteride Capsules should not be handled by women who are pregnant or who may become pregnant because of the potential for absorption of dutasteride and the subsequent potential risk to a developing male fetus [see *Warnings and Precautions* (5.1)].

#### 17 PATIENT COUNSELING INFORMATION

See FDA-Approved Patient Labeling

#### 17.1 Exposure of Women—Risk to Male Fetus

Physicians should inform patients that dutasteride Capsules should not be handled by a woman who is pregnant or who may become pregnant because of the potential for absorption of dutasteride and the subsequent potential risk to a developing male fetus. Dutasteride is absorbed through the skin and could result in unintended fetal exposure. If a pregnant woman or woman of childbearing potential comes in contact with leaking dutasteride Capsules, the contact area should be washed immediately with soap and water [see *Warnings and Precautions* (5.1), *Specific Populations* (8.1)].

#### 17.2 Blood Donation

Physicians should inform men treated with dutasteride that they should not donate blood until at least 6 months following their last dose to prevent pregnant women from receiving dutasteride through blood transfusion [see *Warnings and Precautions* (5.4)]. Serum levels of dutasteride are detectable for 4 to 6 months after treatment ends [see *Clinical Pharmacology*(12.3)].

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#### Patient Information Dutasteride Capsules

##### Dutasteride is for use by men only.

Read this information carefully before you start taking dutasteride. Read the information you get with dutasteride each time you refill your prescription. There may be new information. This information does not take the place of talking with your doctor.

##### What is dutasteride?

Dutasteride is a medication for the treatment of symptoms of benign prostatic hyperplasia (BPH) in men with an enlarged prostate to:

- Improve symptoms
- Reduce the risk of acute urinary retention (a complete blockage of urine flow)
- Reduce the risk of the need for BPH-related surgery

Dutasteride is not a treatment for prostate cancer. See the end of this leaflet for information about how dutasteride works.

##### Who should NOT take dutasteride?

- Women and children should not take dutasteride. A woman who is pregnant or capable of becoming pregnant should not handle dutasteride capsules. See “**What are the special warnings for women about dutasteride?**”

- Do not take dutasteride if you have had an allergic reaction to dutasteride or any of its ingredients.

##### What are the special warnings for women about dutasteride?

- Women should never take dutasteride.
- Women who are pregnant or may become pregnant should not handle dutasteride Capsules. If a woman who is pregnant with a male baby gets enough dutasteride into her body after swallowing it or through her skin after handling it, the male baby may be born with abnormal sex organs.

##### What are the special precautions about dutasteride?

- Men treated with dutasteride should not donate blood until at least 6 months after their final dose to prevent giving dutasteride to a pregnant female through a blood transfusion.

- Tell your doctor if you have liver problems. Dutasteride may not be right for you.

##### How should I take dutasteride?

- Take 1 dutasteride capsule once a day.
- Swallow the capsule whole because the contents of the capsule may irritate your lips, mouth, or throat.
- You can take dutasteride with or without food.
- If you miss a dose, you may take it later that day. Do not make up the missed dose by taking 2 doses the next day.
- You may find it helpful to take dutasteride at the same time every day to help you remember to take your dose.

##### What are the possible side effects of dutasteride?

Possible side effects are impotence (trouble getting or keeping an erection), a decrease in libido (sex drive), enlarged breasts, a decrease in the amount of semen released during sex, and allergic reactions such as rash, itching, hives, and swelling of the lips or face. These events occurred infrequently.

Talk with your doctor if you have questions about these and other side effects that you think may be related to taking dutasteride.

##### How should I store dutasteride?

Dutasteride is a capsule that may become soft and leak or may stick to other capsules if kept at high temperatures. Store at 20° to 25°C (68° to 77°F) [See USP Controlled Room Temperature].

If your capsules are cracked or leaking, don’t use them, and contact your pharmacist.

##### General information about dutasteride.

- Do not use dutasteride for a condition for which it was not prescribed.
- Do not share your dutasteride.
- Ask your doctor about how often you should return for a visit to check your BPH.
- A blood test called PSA (prostate-specific antigen) is sometimes used to detect prostate cancer. Dutasteride will reduce the amount of PSA measured in your blood. Your doctor is aware of this effect and can still use PSA to detect prostate cancer in you.
- If you have questions about dutasteride, ask your doctor or pharmacist. They can show you detailed information about dutasteride that was written for healthcare professionals.

#### How does dutasteride work?

Prostate growth is caused by a hormone in the blood called dihydrotestosterone (DHT). Dutasteride lowers DHT production in the body, leading to shrinkage of the enlarged prostate in most men. Just as your prostate became large over a long period of time, reducing the size of your prostate and improving your symptoms will take time. While some men have fewer problems and symptoms after 3 months of treatment with dutasteride, a treatment period of at least 6 months is usually necessary to see if dutasteride will work for you. Studies have shown that treatment with dutasteride for 2 years reduces the risk of complete blockage of urine flow (acute urinary retention) and/or the need for surgery for benign prostatic hyperplasia.

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NDC 0093-5655-56

# DUTASTERIDE Capsules 0.5 mg

**WARNING:** Dutasteride capsules should not be used by women or children. Women who are or may potentially be pregnant should not use or handle dutasteride capsules (see prescribing information). If contact is made with leaking capsule, wash immediately with soap and water.

**R<sub>x</sub>** only

**30 CAPSULES (Unit-of-Use)**

**TEVA**

Each soft gelatin capsule contains 0.5 mg dutasteride.

**Usual Adult Dosage:** 0.5 mg once a day. See package insert for full prescribing information.

Store at 20° to 25°C (68° to 77°F) [See USP Controlled Room Temperature].

Dispense in a tight, light-resistant container as defined in the USP, with a child-resistant closure (as required).

**Do not use if safety seal under cap is broken or missing.**

**KEEP THIS AND ALL MEDICATIONS OUT OF THE REACH OF CHILDREN.**

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