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[Home](#) | [Treatments](#)

## Hydroxychloroquine & chloroquine

Hydroxychloroquine & chloroquine are anti-malarial medications. Besides being active against malaria, they are used to treat [rheumatoid arthritis](#) and [cutaneous lupus erythematosus](#) (LE) and rashes associated with systemic lupus erythematosus (SLE). They are also used in some [photosensitivity disorders](#) and occasionally in other inflammatory skin conditions. Hydroxychloroquine is used much more frequently than chloroquine, as chloroquine is more likely to cause irreversible retinal damage.

Hydroxychloroquine is available in New Zealand as Plaquenil®, in 200 mg tablets. The usual dose for skin disease is 200 to 600 mg daily, best taken after meals.

Chloroquine is available in New Zealand as Chlorquin® tablets (250 mg) and Nivaquine® film-coated tablets (200 mg) and syrup (68 mg/5ml). The usual dose for skin disease is 100 to 400 mg daily, best taken after meals. The dose in children is 3 mg/kg bodyweight daily.

### Drug interactions

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Hydroxychloroquine may interfere with:

- Digoxin (increased digoxin concentrations)
- Cimetidine
- Monoamine oxidase inhibitors
- Insulin and other antidiabetic drugs

Chloroquine may interfere with:

- Antacids, kaolin (within 4 hours)
- Cimetidine
- Metronidazole
- Ampicillin

### Contraindications

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Antimalarial medications may be unsuitable in the following circumstances:

- Long term in young children (overdose is toxic); chloroquine may be more suitable than hydroxychloroquine in children
- Certain eye diseases i.e. pre-existing macular degeneration
- Allergy to 4-aminoquinoline compounds
- Severe gastrointestinal, neurological or blood disorders
- Intermittent porphyria or variegate porphyria
- Glucose-6-phosphate dehydrogenase deficiency.

Doses of hydroxychloroquine may need to be lower in those who have liver or kidney disease.

Hydroxychloroquine and chloroquine should not usually be taken in pregnancy (Category D) unless essential to treat malaria, as there is a slight chance of fetal abnormality (neurological disturbances and interference with hearing, balance and vision). They should also be avoided by breast feeding mothers. Even small amounts of

hydroxychloroquine may be toxic to newborn babies. Hydroxychloroquine should be avoided by children under 6 years of age.

## Adverse effects

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Adverse effects of antimalarials are uncommon. They include:

- Nausea & indigestion
- Dizziness, ringing in the ears, or decreased hearing
- Headache, seizures & rarely other nervous system disorders
- Psychosis & other psychiatric disorders
- Muscle weakness
- Visual disturbance including halos around lights, blurring of vision, corneal opacity (reversible on stopping treatment)
- Liver disease
- Skin rashes (various types)
- Itchy or darkened skin
- Hair loss or bleaching of hair

They may aggravate [psoriasis](#).

They are highly toxic if taken in overdose, especially to the heart.

## Visual toxicity

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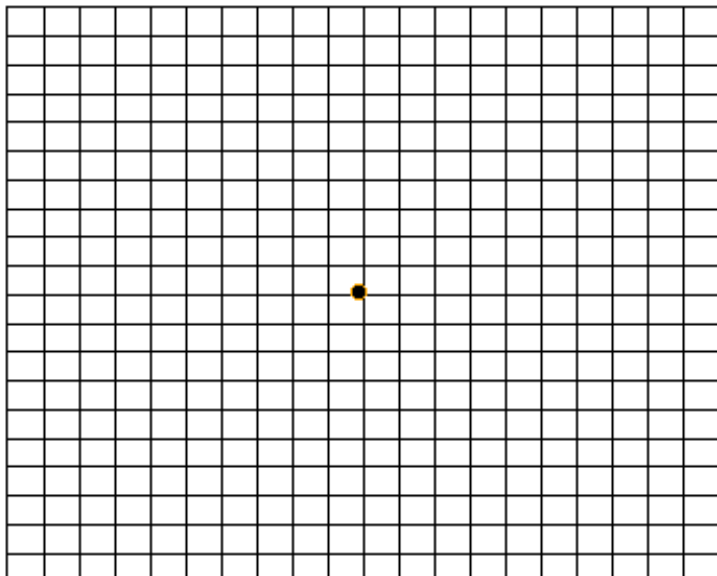
The most worrying side effect of antimalarials is visual toxicity, which affects the retina. This may occur after chloroquine has been taken for a year or longer, or if the total dose is more than 1.6g/kg bodyweight. Visual toxicity may also occur after a high dose of hydroxychloroquine (more than 400 mg daily) has been taken for several years (generally over 8 years continuous treatment). Unfortunately, decreased vision may be permanent. To decrease the chance of this occurring:

- Do not exceed a dose of 200 mg chloroquine or 400mg hydroxychloroquine daily for more than a few weeks at a time.
- Wear sunglasses outdoors.
- Reduce the dose or stop the medication if it is no longer required (with your doctor's permission) e.g. during the winter months.
- See your doctor if you develop any of the following visual symptoms: light flashes and streaks, decreased field of vision, night blindness or problems focusing.
- Check your vision each month with an Amsler grid (please note this is only a rough guide to detect visual field defects).
- Consult an ophthalmologist if you have visual symptoms, if you have been prescribed chloroquine, or after you have taken hydroxychloroquine for five years continuously (or an equivalent time for intermittent courses).

For patients taking hydroxychloroquine in New Zealand, most ophthalmologists recommend routine eye checks as a baseline if there is any visual impairment not corrected by glasses. Those without visual symptoms or visual impairment should be seen by an ophthalmologist for a full assessment after 5 years or so (earlier if there are symptoms). These checks are likely to include visual acuity, Ishihara colour test, examination of the back of the eye (fundus) and central visual field examination. Worrying features on examination include pigmentation (dark coloration) or loss of pigmentation of the retina, optic atrophy (damaged nerve) and scotoma (tunnel vision). An electroretinogram (ERG) may be performed if any screening tests are abnormal.

### Amsler grid

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Right click to save this image to the desktop to print out for your own use.

Place the grid on a flat surface and hold it at a distance of 33 cm. While looking at the dot in the centre of the grid, observe the rest of the lines. All the borders should be visible and all the lines straight. If not, retest after a few hours.

Hold the grid at arms length; focus on the black dot in the centre, first with one eye then the other. If the lines are altered or missing or you are having difficulty focussing, stop hydroxychloroquine and notify your doctor.

## Laboratory monitoring

Periodic blood counts are recommended as antimalarial medications can rarely result in dangerous reduction in cell counts.

- Leukopaenia (low white cells)
- Thrombocytopaenia (low platelets)
- Aplastic anaemia (all blood cell counts are low)

It is also wise to check renal and liver function before treatment and from time to time.

### Related information

#### Other websites:

- Medsafe
  - [Plaquenil](#) consumer information
  - [Plaquenil](#) data sheet
  - [Chlorquin](#) data sheet
  - [Nivaquine](#) data sheet
- [Ocular Toxicity and Hydroxychloroquine: Guidelines for screening 2004](#) pdf file – RCOph.UK
- [Recommendations on screening for Chloroquine and Hydroxychloroquine Retinopathy](#) pdf file – American Academy of Ophthalmology

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DermNet does not provide an on-line consultation service.  
If you have any concerns with your skin or its treatment, see a [dermatologist](#) for advice.

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