



# Convergence Insufficiency

## WHAT IS CONVERGENCE INSUFFICIENCY?

Convergence insufficiency is when it is not possible to keep the two eyes working together (also called binocular function) while working close up. Typically, one eye will turn outward (intermittent [exotropia](#)) when focusing on a word or object at near in those with convergence insufficiency.

## WHAT IS THE DIFFERENCE BETWEEN CONVERGENCE INSUFFICIENCY AND EXOTROPIA?

In convergence insufficiency, eye drifting out occurs only when focusing at near. Sometimes, a well-controlled intermittent [exotropia](#) (outward eye turning) will be present when focusing at near and distance in a patient with convergence weakness. However, in convergence insufficiency the eye drifts outward on its own and causes problems only when focusing on near objects. The eyes are straight for focusing on things far away.

## WHAT ARE THE SYMPTOMS OF CONVERGENCE INSUFFICIENCY?

Symptoms of convergence insufficiency include diplopia (double vision), headaches and eye strain while reading. Many patients will complain that they have a hard time concentrating on near work (computer, reading, etc.) and that the written words will move around and become blurry after reading for a long time. Patients may squint or close one eye when reading. Symptoms can vary with convergence insufficiency and not all symptoms are present in every patient.

## HOW SHOULD A PATIENT BE TESTED FOR CONVERGENCE INSUFFICIENCY?

Convergence insufficiency is diagnosed by an ophthalmologist, optometrist or orthoptist after getting a history of the patient's symptoms and measuring convergence ability. Testing for convergence ability involves measuring the distance from the eyes that the patient can hold the eyes together without



double vision (near point of convergence) and the amount of prism that can be placed in front of the eyes before double vision is seen (fusional vergence amplitude). The examiner may also use prisms to measure how much the eyes move outward at both distance and near. Presence of any [refractive errors](#) (need for glasses to focus), eye movement problems (strabismus), or weaknesses in accommodation (near focusing) may also be tested.

## DOES EVERY PATIENT WITH CONVERGENCE INSUFFICIENCY NEED TREATMENT?

Treatment is needed only in patients with symptoms from convergence insufficiency. Some patients with convergence insufficiency have no symptoms at all.

During a routine eye exam, convergence weakness may be diagnosed even without the above-mentioned symptoms. Some patients test in the office as having poor convergence; however, they do not have vision problems or headaches from it. This may be the result of true convergence weakness, but is often found when the patient is distracted, shy, overly excited or does not understand the directions given. These patients may be retested at another time or simply watched for symptoms of diplopia or headaches with near work in the future. A patient who is not having problems with near tasks but has signs of convergence insufficiency in the office does not need treatment but should be followed.

On the other hand, a child with good convergence in the office may have some symptoms at home or school that are seen with convergence insufficiency. In these cases, a course of treatment for convergence weakness can be tried and the child followed for improvement in symptoms.

## HOW IS CONVERGENCE INSUFFICIENCY TREATED?

In children, convergence insufficiency can often be treated by practicing convergence (pulling the eyes inward toward the nose) through exercises. These exercises may be prescribed by an orthoptist (a medical technician who is specifically trained in eye movements and use of both eyes together) or by an ophthalmologist. There are also computer programs that can be used at home to improve convergence ability. The results of the computer program are often followed by your eye care professional with print outs that



can be brought in to the office visit. Finally, in-office exercises for convergence insufficiency may be used by certain specialized eye care professionals, but often at home treatment is enough to help.

Which type of treatment is used depends on the age of the patient, how close the patient is to an orthoptist or vision therapist and what treatment the patient prefers. It is also important to consider how expensive a treatment is and how easy it will be to get treatments done when choosing a treatment. Scientific studies have not shown that any of the treatment options is best or better than the other. Most studies show that a short course of treatment helps with symptoms. Therapy for long periods of time does not show extra benefits and is usually not necessary.

### **CAN GLASSES OR PATCHING BE USED TO TREAT CONVERGENCE INSUFFICIENCY?**

One form of treatment for convergence insufficiency is base-out prism glasses which force the eyes to work harder to converge (pull inward). They are used only during short periods of time during treatment as they are very tiring to the eyes.

Base-in prism glasses (prisms in the opposite direction to what was just described) can be used to help keep the eyes in good position for reading. However, use of base-in prism glasses can make it less likely that the patient will get stronger convergence and less symptoms when not wearing glasses.

Patching is not a good option to strengthen convergence because wearing a patch will have the patient use one eye at a time and not use the two eyes together. Occasionally, patients will patch one eye temporarily in order to help with double vision when they need to do a large amount of near work.

### **IS CONVERGENCE INSUFFICIENCY TREATMENT ALWAYS SUCCESSFUL?**

Some patients do not get better with exercises or prism glasses. In these cases, eye surgery may be helpful. Although most patients can have much fewer symptoms with medical treatments and do not need surgery.

### **IS CONVERGENCE INSUFFICIENCY PERMANENT?**



Patients with convergence insufficiency may be permanently cured after exercises to strengthen their convergence. Continued near work following convergence therapy tends to help keep good convergence ability once treatment is stopped. At times, convergence insufficiency symptoms will come back after illness, lack of sleep or need to do more work at near. If treatment worked well before, an additional round of treatment may help with symptoms again.

### **ARE THERE OTHER VISION PROBLEMS SEEN IN PATIENTS WITH CONVERGENCE INSUFFICIENCY?**

Patients with convergence insufficiency can have [refractive errors](#) (need for glasses to help focus) and good vision. Testing for accommodative amplitude (the ability to focus each eye alone at near) may show accommodative weakness in those with convergence insufficiency. Speak with your ophthalmologist if you have more questions about convergence insufficiency.

For more information on convergence insufficiency check out: [https://eyewiki.org/Convergence\\_Insufficiency](https://eyewiki.org/Convergence_Insufficiency)

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