

BAGOLINI STRIATED GLASSES



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It is not uncommon to find the busy practitioner and student overwhelmed by research publications. *Vision*, in each edition will present summaries of certain clinical research topics highlighting some of the most salient points. This will aid clinicians and students to keep in touch with the latest developments in eye care and related fields.

INTRODUCTION

The Bagolini striated lens test is a subjective clinical test used in free space to detect the presence and extent of binocular functions such as retinal correspondence, suppression, diplopia, microtropia and manifest deviations. This test is not conducted in isolation but rather used to corroborate and amplify the findings of other important tests such as the cover test, Worth-4-dot and Maddox rod in the management of strabismus and binocular vision anomalies.



Figure 1. Bagolini striated glasses. Striations oriented at 45 degrees in the right eye and 135 degrees in the left eye. P. Ramkissoon, 2015

THE PRINCIPLE OF THE BAGOLINI STRIATED GLASSES

In order to perform the Bagolini test, the practitioner requires a penlight or coaxial light source and the Bagolini striated glasses. Bagolini lenses are plano lenses with many very fine grating lines that are run parallel and close together in one meridian. The glasses are worn over the patient's habitual spectacles. Generally, the Bagolini glasses are oriented such that the striations are positioned at 45 degrees in the right eye and 135 degrees in the left eye. The patient is asked to look at the penlight through both the habitual spectacles and Bagolini striated glasses. The examiner shines the penlight, directing it towards the centre bridge of the Bagolini glasses at the patient's eye level from distance (6m) or near (33 cms), however, most practitioners generally conduct the test only at near. The Bagolini glasses cause the round fixation light to appear as an elongated streak perpendicular to the striations. The patient is still able to see through the striated lenses with very little disturbance of normal vision. Each eye receives a similar image (size, colour, form, except orientation) enabling fusion while permitting simultaneous perception to be observed. The patient is asked to describe or draw what they have seen, however, for ease of communication, it is better for the practitioner to ask the following set of questions first:

- How many round lights do you see?
- How many slanting lines do you see?
- Do the slanting lines cross each other?
- Are the two slanting lines seen at the same time?
- Do any of the slanting lines have gaps in them?
- Which line is on the right and which line is on the left?
- Which slanting line is lower/higher than the other?

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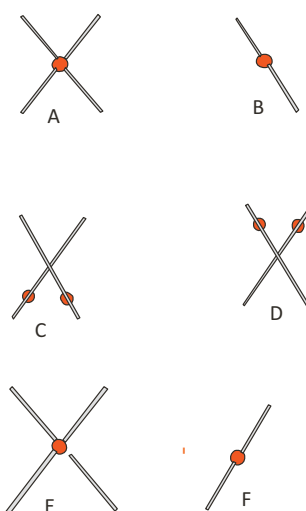


Figure 2. Possible patient responses with the associated clinical interpretations (Please note that the possible views illustrated are from the patient's perspective):

- A=fusion,
- B= right eye total suppression,
- C=exotropia (crossed-diplopia),
- D= esotropia (uncrossed-diplopia),
- E= binocular peripheral fusion with left central suppression,
- F=left total suppression.

P. Ramkissoon, 2015

When interpreting the results, the line associated with each eye is the line perpendicular to the lens in front of that eye. If the lens in front of the right eye is at 135 degrees, then the line on the results representing the right eye will be at 45 degrees. For patients with normal binocular vision, the expected response is a cross with a single round light in the centre. However, some manifest strabismic patients also see a cross with a single round light in the centre. This manifest strabismic patient has harmonious ARC where the subjective angle of deviation is zero but the objective angle as measured by the cover test is not zero. This test can also elicit suppression more easily than other tests because it is the least dissociating test. If peripheral suppression is very deep and extensive then the entire streak will not be visible. If the patient is not fusing and the subjective angle is greater than zero then the 2 streaks will not intersect at the round light and instead 2 lights will be seen (diplopia). An esotrope will see the intersection point below the two lights, while the exotropia will see the intersection point above the two lights. Since esotropia is associated with uncrossed diplopia, esotropia will cause the image of the line in the right eye to move to the right and the image of the line in the left eye to move to the left creating a "V" pattern. Similarly, since exotropia is associated with crossed diplopia, exotropia will cause the image in the right eye to move to the left and the image of the line in the left eye to move to the right, creating an "A" pattern. Often, the patient might see just one light because the non-fixed light falls on a large suppression zone of the deviating eye.



BAGOLINI STRIATED GLASSES

CLINICAL PEARLS

- Bagolini lenses are plano lenses with narrow fine striations that function as micro Maddox cylinders.
- These glasses do not affect the vision or the accommodation of the patient.
- This test is minimally dissociative in order to facilitate the assessment of retinal correspondence.
- The Bagolini Striated Glasses Test is the test most likely to allow the demonstration of fusion in patients who fuse intermittently.
- Harmonious anomalous retinal correspondence is found more frequently when using Bagolini Striated Glasses Test than with the Worth-4-dot test or the synoptophore.
- Two single striated lenses when placed at 90 degrees in front of each eye can be used to measure cyclotropia. The principle of the test is similar to that of the double Maddox rod test. The glasses are placed in the trial frame with the striations vertical, giving rise to two horizontal line images when viewing a spotlight. If the patient has a vertical deviation, the lines will be seen one above the other. The lines can be straightened subjectively by rotating the glasses in the trial frame and the degree of cyclotropia recorded.
- In a patient with normal binocular functions, the expected results would be a cross with the light where the two lines intersect. If the patient has a manifest deviation, but reports a cross as seen in a patient with normal binocular functions, this indicates the presence of harmonious retinal correspondence.
- In a patient with microtropia, the patient may see one centred round light at the intersection of two lines, with one of the lines having a small break in it. This is due to foveal suppression.
- In a patient with an unsuppressed esotropia, the patient will see two round lights with one line through each light. The line corresponding to the right eye will be on the right hand side, meaning that the images are uncrossed.
- In a patient with an unsuppressed exotropia, the patient will see two round lights with one line through each light. The line corresponding to the right eye will be on the left side, meaning that the images are crossed.
- If the patient sees one light, this means that either they have fused the two images from each eye together, or are suppressing of one of the images.
- If the patient sees two lights, this is indicative of diplopia as the patient has an image from each eye but is unable to fuse the two.
- If only one line is seen, this means that one eye is suppressing. The eye that is suppressing is the eye which the corresponding line is not seen.
- If the patient sees two lines, this means that there is no suppression of either eye.
- The patient may report that they see one line, then the lines switch and they can only see the other line. This is the case in an alternating deviation, where there is always one eye suppressing, however the fixing eye is switching.
- If a line has a break in it, this means that there is a scotoma somewhere on the retina.
- In a patient with an unsuppressed vertical deviation, one line will appear higher than the other. If the image of the right eye is higher than that of the left, this means that the right eye is lower than the left. This could be either a right hypotropia or a left hypertropia.
- If the patient reports that they see two lines, however only one of these lines crosses through the fixation light, this indicates the presence of unharmonious retinal correspondence.
- Patients with abnormal correspondence have a worse prognosis than those with normal correspondence.

CONCLUSION

Bagolini striated glasses are clear lenses with fine striations that are non-dissociating allowing for evaluation of binocular functions.

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**1-DAY ACUVUE® MOIST BRAND MULTIFOCAL
CONTACT LENS**

WINS SILMO D'OR AWARD



Johnson & Johnson Vision Care, Inc. was recently awarded the prestigious SILMO d'Or vision award for its new contact lens for presbyopia, 1-DAY ACUVUE® MOIST Brand MULTIFOCAL Contact Lens. This is the sixth SILMO d'Or win for the ACUVUE® brand.

SILMO, The International Optical Trade Show, acknowledges the most significant technological innovations each year with its SILMO d'Or awards and notes that they are "a label of quality and originality, and reward the inner values of the profession: technological innovation and creativity."

The juried awards were chaired by international designer Emmanuel Gallina, and recognized 10 winning products in nine categories on September 25th. 1-DAY ACUVUE® MOIST Brand MULTIFOCAL won the Vision category for contact lenses.

"We are proud to be recognized for our innovation with our new 1-DAY ACUVUE® MOIST Brand MULTIFOCAL lens for presbyopia," said Rob Hollin, Worldwide President of Johnson & Johnson Vision Care, Inc. "We spent more than five years of research, development and study of the aging eye; and conducted the largest study ever of pupil size to develop this contact lens;" he added.

Other award categories included Material and Equipment; Low Vision; Children; Optic Frame; Sunglasses; Sports Equipment; Frame Technology; and a Special Award. The SILMO d'Or awards have been handed out since 1994.

The SILMO International Optical Trade Show hosted nearly 33,000 industry visitors at the four-day show featuring more than 1,350 products.

1-DAY ACUVUE® MOIST Brand MULTIFOCAL is an industry first: the only multifocal contact lens that has been created with uniquely optimized optic designs to address the natural variations in pupil size according to age – and refractive power. Traditionally, complex optics in a multifocal made them difficult to fit. With 1-DAY ACUVUE® MOIST MULTIFOCAL, 94% of patients are successfully fit with two pairs of lenses or less. The product launched in Europe and the US earlier this year and was developed based on years of insights of the presbyopic eye.

For more than 30 years, Johnson & Johnson Vision Care has focused exclusively on improving vision through quality contact lenses, never compromising on its goal to create technologies that make meaningful differences in people's lives.