

Binocular vision

5

Easy eye
exercises any ECP
can start with



WHY

Binocular vision problems can have a significant impact on our quality of life. It can affect depth of vision, distance judgement, eye-hand coordination and our efficiency during reading and learning activities.

In this digital age, however, most of us are doing more near work than generations before us. With this increased visual demand, even if our binocular systems are not working with 100% accuracy, we can easily experience eye strain and fatigue.

In addition to optical solutions, eye exercises can improve the efficiency of our binocular systems significantly. But finding manual eye exercises for accommodation and vergence, that are both fun and effective, can be challenging.

Here are 5 simple eye exercises that any eye care practitioner can prescribe where necessary. Offering a binocular vision service, will not only increase revenue and word-of-mouth, but also have a significant impact on our community and future generations.

These include exercises for:

Vergence - Accommodation Coordination

1. Double Vision

Vergence Accuracy

2. Fusion Hoops

Accommodation Accuracy

3. Focus Flex

Eye Movement Accuracy

4. Tracking Eye Movements
5. Jumping Eye Movements

1 DOUBLE VISION

GOAL:

To improve the coordination between fixation (where your eyes point) and accommodation (how your eyes focus), essential visual skills for copying material from the board or screen accurately and efficiently.

EQUIPMENT:

A brightly coloured target like a pencil or a toy.

SCHEDULE:

Approximately 5 minutes a day for about 3 weeks.

ACTIVITY:

This activity should be done with both eyes open. Your head should be kept facing STRAIGHT ahead at all times and only your eyes should move.

1. Place a picture on the wall at eye level about 3m away. Hold a target about 15cm in front of your eyes in line with the picture on the wall. Both the target and the picture on the wall should be centred between your eyes.
2. With your eyes focussing on the picture, you should see two images of the near target, one on each side of the picture.
3. Tilt your head slowly over toward your right shoulder & then to the left to see what affect this has on your two near targets. Now for the rest of this exercise, make sure that the two images of the near target are the same height and size.
4. While still looking at the picture on the wall, slowly extend your arm further away so that the two near targets move closer towards the picture.
5. Focus on the space between the two near targets as you move it closer and further away from the picture. If you stop seeing two images of the near target, you probably took your focus off of the picture and are now focussing on the near target. Practice this until you can move the target from about 15cm in front of your eyes to arm's length and back again at least 4 times without losing the two images of the near target.
6. Now, look at the near target and notice what is happening to the distant picture.
7. Keep your eyes on the target as you move it slowly out to arms length toward the picture. The two images of the picture should move closer together as you move the target closer to the picture.
8. Next, practice jumping back and forth between the near target and the picture, moving the near target to different distances. Work to increase your speed and focus flexibility, clearing each object before you jump to the next.

2 FUSION HOOPS

GOAL:

To improve flexibility between accommodation (focus) and convergence (eyes turning in).

EQUIPMENT:

Cut out the fusion hoops into 2 separate images (1 and 2).

SCHEDULE:

Approximately 2 minutes, several times a day for at least 3 weeks or until the task is performed comfortably and well.

ACTIVITY:

This activity should be done with both eyes open all the time. Your head should be kept facing straight ahead at all times and only your eyes should move.

Convergence:

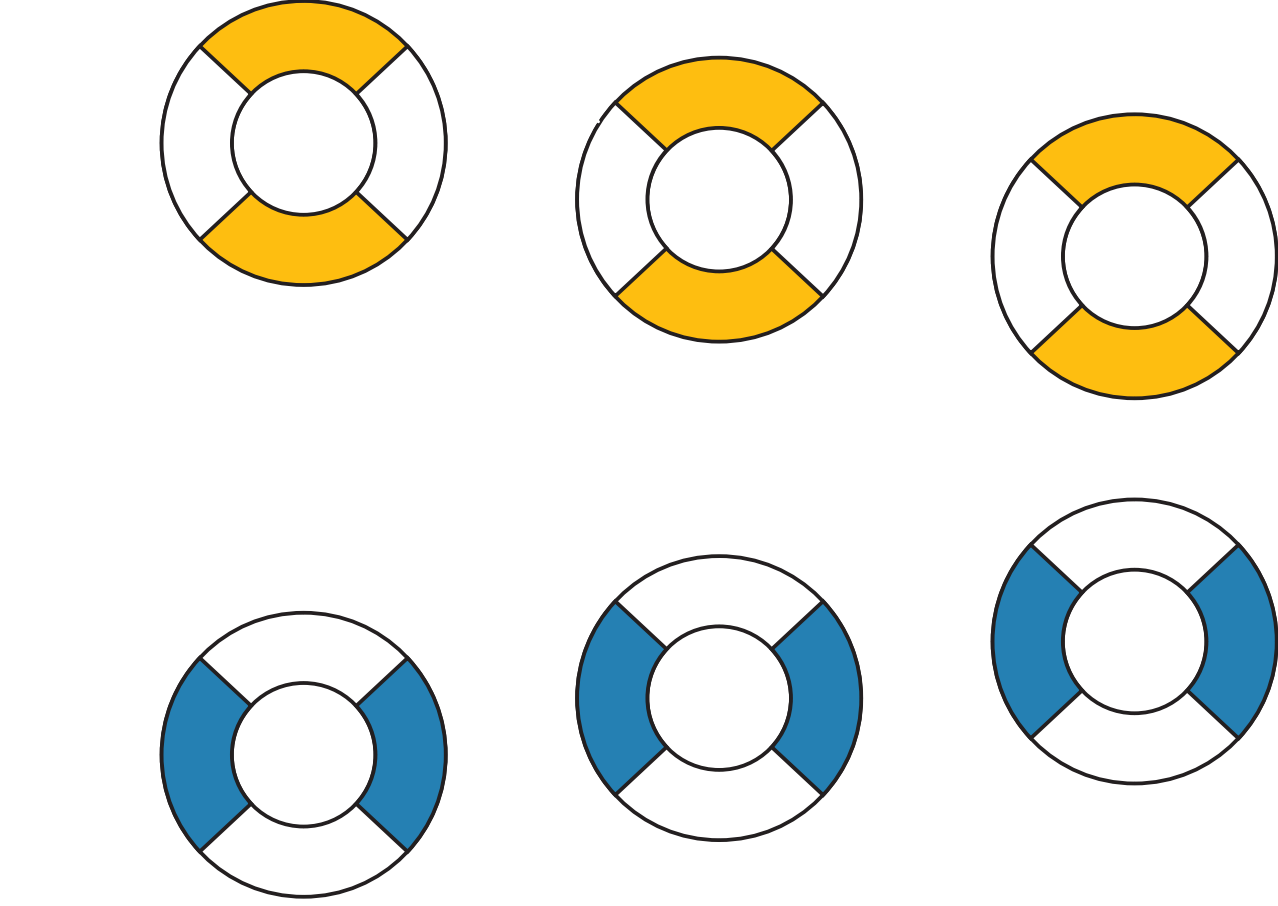
1. Hold the first set of hoops (1) about 40cm away in one hand.
2. Hold your index finger about 15cm in front of your nose. While focussing on your finger, notice what happens to the hoops behind your finger. Between each set of hoops (one blue, one yellow), you should now notice a third circle.
3. The third circle should look like a combination of the original two hoops, blue and yellow.
4. Repeat this several times, then try to see the third hoop, all the way to the top without using your finger to help guide your aim. It becomes harder when the blue and yellow circles get further apart!! 😊

Divergence:

1. Hold the first set of hoops (1) about 40cm away in one hand.
2. Repeat the steps as above, but now instead of focussing in front of the hoops, focus behind.
3. Imagine you can look through the piece of paper with the circles on it.

Stage 2

1. Now repeat the above with the second set of hoops (2).
2. See if you can get the third hoop and see if you can see the letters in the hoop clearly.



3 FOCUS FLEX

GOAL:

To improve accommodation flexibility as well as tracking, visual skills essential for copying material from the board or screen accurately and efficiently.

EQUIPMENT:

The near (small) and far (big) charts.

SCHEDULE:

Approximately 5 minutes a day,

ACTIVITY:

This activity can be done with both eyes open or one eye at a time by covering the other eye with your hand or an eye patch. Your head should be kept facing straight ahead at all times and only your eyes should move. Try not to use a finger or any other marker.

Stage 1:

Place the big chart on the wall at eye level about 3m away, the student is holding the small chart about 40cm away from their eyes.

1. If this is done monocularly, close one eye with your hand or eye patch.
2. The student is to alternate between the big chart on the wall and the small chart in hand, reading the first letter on the big chart, second letter on the small chart, third letter on the big chart, fourth letter on the small chart ... all the way to the number 50 block.
3. If this is done monocularly, switch to the other eye and repeat the process.

Stage 2:

4. It helps if someone does this exercise with the student from time to time.
5. That person can then call the number of any block (alternating between the big chart, and the small chart, e.g. big 5, small 7, big 10, small 12...)
6. The student has to find that block, and read out the letter inside that block accurately.
7. Alternate between the big chart and small chart calling random numbers between 1 to 50. You want the student to wait for that block (big or small) to be clear before reading its content out loud.

Notes and Recommendations

The corresponding near and far charts are identical. For stage 2, the person doing the exercise with the student can print out extra near charts for themselves. In that way you don't have to alternate near and far with the student, you can just look at your own chart to see if the student reads out the contents of each block correctly. Make sure that the student does alternate between the near and far charts though.

1 n	2 c	3 v	4 z	5 o	6 m	7 u	8 x	9 s	10 e
11 x	12 e	13 w	14 u	15 z	16 s	17 n	18 w	19 o	20 v
21 u	22 z	23 c	24 v	25 o	26 n	27 e	28 x	29 s	30 m
31 m	33 o	32 e	34 s	35 u	36 c	37 n	38 v	39 z	40 x
41 v	42 s	43 n	44 x	45 e	46 u	47 z	48 o	49 m	50 c

1	2	3	4	5	6	7	8	9	10
n	c	v	z	o	m	u	x	s	e
11	12	13	14	15	16	17	18	19	20
x	e	w	u	z	s	n	w	o	v
21	22	23	24	25	26	27	28	29	30
u	z	c	v	o	n	e	x	s	m
31	33	32	34	35	36	37	38	39	40
m	o	e	s	u	c	n	v	z	x
41	42	43	44	45	46	47	48	49	50
v	s	n	x	e	u	z	o	m	c

4 TRACKING EYE MOVEMENTS

GOAL:

Improving tracking eye movements, to ensure smooth and accurate eye movements when we follow a moving target or scan across a line of text when reading.

EQUIPMENT:

A brightly coloured target like a pencil or a toy.

SCHEDULE:

Approximately 4 minutes, several times a day for about 3 weeks, or until comfortable.

ACTIVITY:

This activity can be done with both eyes open or one eye at a time by covering the other eye with your hand or an eye patch. Your head should be kept facing straight ahead at all times and only your eyes should move.

Horizontal Pursuits:

1. At eye level, hold the target about 35cm away on the midline between your eyes.
2. Follow the target as you slowly move it left and right on a horizontal line.
3. Try to stretch the eye as far as possible, extending as far to the left as to the right.
4. Repeat this part of the activity for about 1 minute.

Vertical Pursuits:

1. At eye level, hold the target about 35cm away on the midline between your eyes.
2. Follow the target as you slowly move it up and down on a vertical line.
3. Try to stretch the eye as far as possible, extending as far to the top as to the bottom.
4. Repeat this part of the activity for about 1 minute.

Diagonal Pursuits:

UP (Bottom left corner to top right corner)

1. Follow the target as above, but this time in a line from your bottom left corner to the top right corner.
2. Repeat this part of the activity for about 1 minute.

Down (Bottom right corner to top left corner)

1. Follow the target as above, but this time in a line from your bottom right corner to the top left corner.
2. Repeat this part of the activity for about 1 minute.

OBSERVATIONS AND SUGGESTIONS:

1. Watch out for any irregular eye movements, make the student aware of this.
2. Ensure that both eyes are aimed at the target accurately at all times.
3. To make this more difficult, let the student repeat these rotations alternating hands, or follow the target while spelling words or doing simple math calculations.

5 JUMPING EYE MOVEMENTS

GOAL:

Improving saccadic eye movements, to ensure smooth and accurate movements when our eyes jump from one target to another or from the end of each line to the beginning of the next line when reading.

EQUIPMENT:

Two brightly coloured targets like pencils or toys.

SCHEDULE:

Approximately 2 minutes, several times a day for about 2 weeks.

ACTIVITY:

This activity can be done with both eyes open or one eye at a time by covering the other eye with your hand or an eye patch. Your head should be kept facing straight ahead at all times and only your eyes should move.

1. At eye level, hold two targets about 40cm from your eyes and about 40cm apart horizontally.
2. Jump quickly from one target to the other target making sure the target is single and clear after each jump.
3. Repeat this activity in different positions of gaze (both targets to the right, left, up and down), separating the targets both horizontally and vertically.

OBSERVATIONS AND SUGGESTIONS:

1. Watch out for any inaccurate eye jumping (called undershoots or overshoots) and make the student aware of this.
2. As the activity progresses, make the student aware of other objects in the room (creating peripheral awareness).