1. Introduction

The world orthoptics has its origin in Greek words orthos (straight) and optikos (ocular). Orthoptics is method which should lead to reducing of simple strabismus (SBV). SBV has two components – motor and sensory. Remedy of both eyes cooperation is possible only in case of earlier SBV existence. During the orthoptics training we can use many different instruments, which helps to renew of SBV and to improve eye motility and position. In case of congenital and acquired eye disorder orthoptics training helps to rehabilitate of SBV. Training must be led by the orthoptics specialist.

2. Procedures of orthoptics training

The base of diagnosis and indications of orthoptics training is precise examination of patient’s visual function (visual acuity, cover test, test of eye motility etc.). In case of positive diagnosis ophthalmologist/orthoptist suggests procedures of treatment, which depends on degree of SBV development and age of child. Really important is child’s motivation to training, which makes treatment much easier and effective. Training should be performed with optimal spectacle correction. Procedures of orthoptics training are these:

- Un-suppressing of eye and training of superposition
- Training of fusion
- Training of eye motility
- Training of convergence
- Training of relationship between accommodation and convergence

6. Remy’s separator

This mechanical instrument is used for relaxation of accommodation and convergence and for training of their relationship. Partial dissociation in real space is reached with 30 cm long, which is placed to nose root.

7. Remy’s diploscope

This instrument is based on dissociation of real space. It is used for training of relationship between accommodation and convergence. Instrument is composed of metal lathe with nose-rest, removable curtain with 4 apertures with 7 mm diameter (adjustable according to pupilar distance) and of special mirror. Curtain and fixation stick is movable. Distance between curtain and eyes is 260 mm. Apertures are placed in shape of “chair” (two vertically and two horizontally). Patterns are usually made of 3 letters e.g. DOG.

8. Diploptics training

Diploptics training was for the first time described by Averteio in 1978. It is used for training of fusion. Instrument use real space dissociation with red filter. At first we create diploscope and after this we use red filter. Pictures could be seen still doubled or could be fused. We provide the treatment in dark room with one source of light, which could be placed from 1 to 6 meters. Patient should fix this point, Examiner use red filter. Patient should notice his diploscope and should hold it despite weakening of light intensity and despite of presence of red filter. Due to this effect patient is trying to connect pictures with motor fusion. Children learn this way how to control position of both eyes. We can also use prisms with power matching to deviation. During the training we weaken power of prisms.

9. Reading with image divider

With this method is possible to fix fusion and train SBV. It is based on partial dissociation of image in real space. In principle we insert slit with various width in front of reading text. Person with normal SBV has no problem with reading. Eyes built the visual sense together. If there is some defect in SBV, some part of text could disappear. Part of image divider of image divider could also head-rest. If the slit is near to text reading is harder.

10. Training of convergence

Second complementary exercise to classic orthoptics is training of convergence. The biggest advantage of this exercise is possibility to do home training. Parent holds some small object in hand and child is trying to fixate this object at 1 meter distance. Parent moves with object closer to child, until it is seen doubled. Important thing is children’s head immobilization, because moving is allowed only for eyes. We try to find symmetrical convergence. In case of children’s head immobilization we can also use special device called convergence trainer (convergence-meter).

11. Orthoptics in Czech Republic

In the Czech Republic (CZE) we have few types of orthoptics workplaces. First types are outpatient offices in eye clinics of many hospitals in CZE. Every bigger hospital has own eye clinic with orthoptics outpatient office. For example town hospital in Pardubice (CZE) has outpatient orthoptics office. Faculty hospitals have orthoptics centers or more outpatient offices. For example Prague has 3 faculty hospitals with orthoptics centers. In Brno there is one faculty hospital with lot of outpatient offices. Other types of orthoptics workplaces are private orthoptics centers or more outpatient offices. For example Prague has 3 faculty hospitals with orthoptics centers. In Brno there is one faculty hospital with lot of outpatient offices. Other types of orthoptics workplaces are private orthoptics centers or more outpatient offices. Parents come here with their children once or twice a week. Other types of orthoptics workplaces are pre-school or school children with strabismus. These orthoptics places are really efficient for eye-therapy, because children have special orthoptics program. Children need not to do so many exercises at home. Last, special, type of orthoptics workplace is eye-sanatorium in Dvur Králové nad Labem. Children stay here for 6 weeks. Their day schedule contains school lessons, playing games and entertainment with schoolmates. Three times per day children must undergo orthoptics training. This sanatorium works almost during whole year. This type of orthoptics training is most effective because of longer time. Sometimes the problem is that children must stay here alone without their parents. But parents can visit their children.

12. Study of orthoptics in CZE

Study of orthoptics in CZE passed through a lot of changes during last 10 years. Before 2005 was legal in Brno or more outpatient offices. For example Prague has 3 faculty hospitals with orthoptics centers. In Brno there is one faculty hospital with lot of outpatient offices. Other types of orthoptics workplaces are private orthoptics centers or more outpatient offices. Parents come here with their children once or twice a week. Other types of orthoptics workplaces are pre-school or school children with strabismus. These orthoptics places are really efficient for eye-therapy, because children have special orthoptics program. Children need not to do so many exercises at home. Last, special, type of orthoptics workplace is eye-sanatorium in Dvur Králové nad Labem. Children stay here for 6 weeks. Their day schedule contains school lessons, playing games and entertainment with schoolmates. Three times per day children must undergo orthoptics training. This sanatorium works almost during whole year. This type of orthoptics training is most effective because of longer time. Sometimes the problem is that children must stay here alone without their parents. But parents can visit their children.

13. Conclusion

Orthoptics training is very important discipline of ophthalmology. Now we have a lot of knowledge about the eye evolution and a lot of opportunities to diagnose vision disorders (exactly and sooner) and save or improve children’s binocular vision and get better quality of their lives. Orthoptics training must be leaded with orthoptist with qualification and this can be performed only for children’s outpatient offices in hospitals or in homes. Parents are usually school or pre-school children. This is the reason why orthoptist must be also emphatic, not only specialist. Success of orthoptics training depends also on motivation and good cooperation between the orthoptist and children. Orthoptics treatment in CZE has other important morphophase. All orthoptist in CZE must be member of Orthoptist association. Education of our specialist in orthoptics is still developing and we try to improve it as much as is possible.