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ORTHOPTIC SYNTONIC TECHNIQUE AND CASE REPORT

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In my thesis on "Motion combined with Syntonics" I briefly discussed the possibilities of orthoptic syntonic technic. Mention was made of adjustable rotating prisms which at that time appeared rather expensive to install. I have since found an inexpensive method of incorporating the added technic which I have termed "auxiliary Rotating Prism". (A.R.P.)

Through this added technic some valuable by-products have been discovered which solved some of my most difficult problems on certain squint and heterophoria cases.

To impart this added technic a brief review of orthoptic attachment to the new and old model syntonizer may be necessary. Motility is accomplished by rotating a pair of ten prism diopter plano lenses with the bases neutralizing 1 Δ in, and the other Δ out, and so rotated that the bases are always in the same position and are called "R.P." when referred to in technic. On the edges of these prisms coincident with these bases is ground a flat section which mirrors the frequency for greater motility and peripheral stimulation.

Thus far the technic is simple, and very much the same as squint Korector technic transplanted into the syntonizer. The added technic is also very simple when thoroughly understood.

The Auxiliary rotating prism technic introduces base in, base up, base out, and base down stimulation in each revolution. The auxiliary rotating prisms are ground to fit a depression in the mechanism positioned base on base of the fixed ten P.D., and slowly rotated before the non-dominant, or squinting eye. If the power of the auxiliary rotating prism is five P.D. and could be fused on both lateral sides, that is when the frequency target was projected to the right, and left in its circular course, such a case makes a change of ten prism diopters in convergence in each revolution.

It must be remembered that the auxiliary rotating prism is used on the squniting or non-dominant eye. If you will place a base in prism before the right eye, and without turning, place the same prism before the left eye, the base will be out.

On a squint case I use sufficient power in the auxiliary rotating prism so that the base up and base down cannot be fused. If the case is convergent squint, auxiliary prisms are placed base out evenly divided over the eyes to neutralize the deviation. Those auxiliary prisms do not rotate. On the new model syntonizer round prisms from the trial case can be used on a special adapter for holding same in position before the rotating prisms. In the old model syntonizer either square prisms can be used, or an adapter can be made to hold the prisms from trial case. If deviation should be forty Δ diopters, use a pair of twenty's bases out. Please do not quote me as further stimulating an in-turned eye with base out prism, as they are used to place the frequency on threshold of macular areas whereon it is believed that the arrangement of cells in the retina is exactly duplicated in the visual areas of the occipital cortex or the actual sent of vision.

It was believed by myself and others that because an eye turns in that such a case should be treated with Δ s1 base in. Some alarming disclosures have been made with the auxiliary rotating prism technic on cases which heretofore were given credit for adduction that they did not possess. Phorias are often misleading. Ductions are a by-product of reciprocal innervation which ceased to function normally at the onset of the squint.

On all future orthoptic attachments there will be arranged on that driving shaft of the motor an adjustable indicator which will show the exact position of the fixed R.P. and will indicate exactly when to question the patient whether the frequency target is fused or not fused so that the syntonist may not be confused at any time.

The auxiliary rotating prism is the stimulator and agitator in syntonizing, and nascentizing by keeping the power beyond ability to fuse vertically the attention value in breaking up suspension and improving subnormal vision is highly recommended. The motion should be slow and often reversed.

Nascentizing should be continued longer on squint cases. If a correct analysis of deviation is made, R.G. should be vertically aligned with B. G. when the mechanism positions the prisms base up, or base down. This will show on the indicator. This is a preliminary deviation test and is made without motion. Nascentizing should be in motion at slow speed and diagnoses made of suspension, and deviation. Question the patient on which side the two colors come closest. Press the power switch when indicator is on base in, also when in base out position.

After applying the frequency cut out targets are used in the shape of a cross, one vertical line with short horizontal line in the center, and are placed in rear cell of old model syntonizer. Learn as quickly as you can with minimum power of base out auxiliary stationary prisms which will permit the auxiliary rotating prisms to be used on both lateral sides. Let them fuse the base out first, as it was observed when the deviation is exactly neutralized on all cases thus for treated. These cases should not be credited with any adducting, or abducting ability as their amplitude of convergence is zero. You may now quote me as stimulating an in-turned eye with base out prisms with a five prism diopter auxiliary rotating prism.

As soon as the frequency target can be fused on both lateral sides this case positively has an amplitude of convergence, and reciprocal innervation begins to function. The stationary auxiliary base out prisms are reduced as quickly as possible. I am constantly on the alert to study and treat any tetanus with this technic.

Treatment is thusly continued until frequency target can be fused without any base out auxiliary stationary prisms. By this time, you are reasonably assured whether eyes are crossed because of any tetanus, and the auxiliary rotating prism power can be increased thereby further expanding the amplitude of convergence, and base in and base out stationary auxiliary prism should be applied on each visit.

While there is nothing sure about squint cases the technic when used in conjunction with other myologic techniques has proven to be very effective with immediate responses and mush faster results obtained.

I am appending some case reports wherein I have reasonably proven that abduction will be retarded, eyes remain crossed for much longer periods because of the fear of further stimulating an inward deviation with base out treatment. These cases would not abduct to any greater distance because of insufficient convergence to recover fusion from a more remote distance.

Also, cases believed to be over converged because of long periods of observation which dated back to an actual inward deviation. It was feared that any investigation of adduction would further stimulate an esotropia, and therefore adduction was neglected. It was observed that after treating these cases with auxiliary rotating prism technic, and stationary base out prisms abduction was increased.

Mr. age 19. Asthenic, good health. Sixty Δ. Alternating convergent squint. Normal vision both eyes. Rx: +3.00 S. +.50 X150 C. O.D., and O.S. +3.50 S. +.50 C. x 10. Onset of squint when very young. Believed to be caused from a fall. That I may do justice to a complete report, there are four stages which represent four periods of time when continued over thirty-one months on this case. They are:

A. First eleven months. Suspension eliminated, single binocular vision accomplished at 1/3 meter. Constant diplopia for any distance beyond that point. Reduced deviation seven meter angles. Technic used: Squint Korector, Stereo-rotoscopic technic (my own design) and Peckman Manuductor.

B. Second eleven months. Deviation of squint reduced ½ meter angle from 13" to 16". There was constant diplopia beyond 16". The same technic was used with the addition of syntonics without motion, or stationary auxiliary prisms. Local ω was the major frequency used. μ and μυ, and υω were also used. During this period more intensive orthoptic training was attempted. Syntonics greatly assisted in relieving discomfort but after reducing deviation seven meter angles in (A) period and only ½ meter angle in (B) period with the addition of what I know to be a more powerful agency it occurred to me that I must be applying Syntonics with the brakes set.

C. Next two months. Reduced deviation ½ meter angle. There was single binocular vision at 20" with constant diplopia beyond 20". Alternation ceased, and fixed mostly with right eye. Some technic was used except base in prisms were used during syntonization.

D. Next five months. Reduced deviation one meter angle. Could fuse at one meter but not constant. Could also fuse distant objects momentarily. These results were accomplished in the first three weeks of this five month period after which stationary condition prevailed. Technic used was orthoptic syntonics with base in prisms only. The prisms were stationary but the frequency was in motion. Syntonic Rx: L-μ alternated with μδ and μυ.

It will be noted that the deviation was reduced nine meter angles thus far, and this was a long haul. You may probably criticize me for taking on such a case, but actual experience in this work has proven to be helpful, and it is hoped that I have learned on this case will help others. Up to this stage I neglected his amplitude of convergence which was directly proportional to his capacity of reciprocal innervation. I was trying to send him on a journey, namely an abducting journey, and had not provided him with any adduction, which is analogous to his return trip ticket, and as he wished to return, he refused to abduct to any greater distance then he could handle with his limited adducting ability.

The time element in this case was a factor to be considered. His mother insisted upon an operation which seemed a shame. I have photos of this case before starting treatment, and also just before the operation. The boy wanted to leave town, and as change of environment. The right eye would fix, and at one meter his eyes looked straight. It was learned too late that base out prisms could not be used in his prescription to give him single binocular vision at distance, which I always anticipated as a finishing up procedure, so I had the left eye operated.

Post-operative orthoptic syntonic treatment started ten days after operation. There was esotropia for one half hour in the morning, and exotropia the balance of the day. Before the operation this case always awakened with the greater deviation inward.

Nine syntonizations of L-μδ accomplished single binocular comfortable vision at all distances. Syntonization were 15 minutes long, and three times per week. The first four syntonizations were given without any auxiliary rotating prism, or any stationary auxiliary prisms. Just the frequency with motility. The last five syntonizations were given with very mild base out, base up, base down, and base

in stimulation with three prism D. rotating. Five weeks from the date of operation the case showed near adduction of 16-R.7. Near abduction 10-R.9, and it was dismissed to one syntonization each week, for four weeks. At present I only see him once each month. Nine months after the operation the near adduction was 25-R.20; and near abduction 20-R.18. Orto for distance. The technic used was orthoptic syntonics exclusively. Rx: L- μδ with auxiliary rotating prism.

Case No. 2

Master H. S. Age 9. In the year 1931 this boy at the age of six came to me with 45 P.D., alternating convergent squint. The vision was practically normal in both eyes with correction. In six months time the eyes were straight. 100 P.D. abduction with Squint Korector at 6M. could fuse 14 P.D. base up, and 14 Δ base down.

At the end of one year this case could master the entire series of Peckman's stereograms for alternating squint via manuductor training with both hands. The technic used, meaning the squint korector – all base in – stereorotoscopic technic, was my own design. This case was considered not finished, but he didn't come in for awhile. In nine months, during which time a major operation was performed, he came in, and examination showed left convergent intermittent squint.

On making analysis for versions and convergence by approach method it was observed that beginning at one meter the left eye struggled with convergence – that is to say there was intermittent left esotropia from one meter on in to 12 inches, and at this distance there was constant left esotropia. Near adduction at 13 inches, 5-R-0. Near abduction 40-R.30. Exo of 8 at 13 inches and still the left eye turned in. Squint kerector diagnosis showed these eye amplitudes at 20 ft. Add, 20: abd. 50, with 14 base up – 14 base down.

Syntonized L-μδ combined with δ auxiliary rotating prism over the left eye, with slow motion. The base in position was fused, likewise the base up and base down, but not the base out. Nascentized 5 minutes. Three minutes after applying μδ the frequency was fused all around, and was continued for 7 minutes. The 10 Δ auxiliary stationary base out was added evenly divided over both eyes. This combination was fused exactly as when the 5- A.R.P. was first used, namely the 5-Δ base out, 5Δ base up, 5Δ Base down, but not the 15Δ base out. It took five minutes before this was accomplished, and was continued five minutes longer. Total time of syntonization, not including nascentizing, 20minutes.

Second syntonization one week later. The case looked much better to me, and I felt such confidence in the auxiliary rotating prism technic, that I thought it should be a standard technic in my office. First half of 20 minute syntonization L-μδ combined with 5 rotating prism over the left eye. The second half, 10 rotating prism. Having high vertical ductions the case fused the entire combination, including the nascentizing. The third and fourth syntonizations were one week apart. L-μδ combined with 5 rotating prism and 20 auxiliary prism base out evenly divided. The case fused the 15Δ base out, the 10Δ base up, and down, but not the 25Δ base out. It took 5 minutes after fusing all around.

On the fourth visit after syntonization the near adduction was 13-R-6, and near abduction 60-R-30. Note what happened to near abduction when there was no base in treatment on the last two visits; and the abduction as well as adduction was increased. Intermitting squinting ceased after the third treatment. Near point of convergence 3 inches, and when it broke it was divergent instead of convergent. Exo 1 at 6 M., and Exo 5 at 1/3 M. After five more treatments as above the near adduction was 26-R-22. Near abduction 32-R-24. Ortho at 6 M. Exo 6 at 1/3 M. It may be well to state that the major operation referred to above involved the genital organs. All base in treatment undermined his convergence. All eyes do not turn in because of tetanous. IT IS LACK OF RECIPROCAL

INNERVATION. This case is under observation and treatment once each month. He now has a distance adduction of 40Δ, and he likes orthoptic syntonic technic over so much better than squint korector because I do not keep him so long.

Case No. 3

Miss e. D. age 16. Intermittent left convergent squint. R: +5.50 S. +.50 C. x 90, O.D.; and O.S. +5.50 S. V.A. is 20/20 right and 20/35 left with R. No orthoptics were ever attempted on this case until recently. One of these cases amenable to refraction, and because of long periods of observation which dates aback to a very much inturned left eye, no attention was ever paid to adduction which was only recently analyzed and would probably have been passed up this time if it were not what I had learned through orthoptic syntonic technic. It will be noted that if her glasses were removed the squint was not intermittent – it was constant.

Positive relative convergence at 1/3 M. or near ductions, Add. 13-R-8, and abd. 24-R-16. When she squinted it was inward deviation, and occurred between one meter and 1/3M. only with her glasses on.

6 M. Myo fusion amplitudes, Ald. 20-R-8, and abd. 8-R-7, with 8nbase up over the right eye, R-4, and 6 base down R-3, 1Δ. Eso at 6M. ortho at 1/3M. First treatment, L-δ combined with 5rotating prism over left eye. During nascentizing there was constant esotropia. Not even the base out position would be fused. δ was fused in the base in position immediately, but not in the 5 base out position. After six minutes the situation was reversed; the 5 base out became fused, and the 5 base in unfused. The frequency was changed to μ and soon after both base in and base out positions were fused, and reversed the vertical break in fusion of the 5 auxiliary rotating prism.

The second treatment of L-μδ with 5 auxiliary rotating prism over the left eye, combined with 14 auxiliary stationary prism base a out evenly divided was given the next week. The first 5 minutes of μδ With the 9 Δ base out was only fused. The last 10 minutes of this 15 minute treatment she fused both lateral sides, or 19 Δ base out, and 9 Δ base out, and fusion broke when the frequency target was in base up position. Squint korector diagnosis after the syntonization showed that she could fuse 30Δ base out to 8 ft., and 18 Δ base in to 6 ft/. which indicated an increase in abduction from base out syntonization with orthoptic syntonics.

The third syntonization was exactly like the second, and one week later it was observed that μδ was fused after the first 3 minutes, abd that the 5 auxiliary rotating prism was also fused in base up, base down positions as well as maximum and minimum base out, namely 19 Δ and 9Δ, base out. Squint korector diagnosis afterward showed that she could fuse 30Δ base out to 12 ft., and 20Δ base in to 6 ft. Note a gain that the increase in adduction and abduction with base out, base up and base down treatment with orthoptic syntonics is used. Near point of convergence 3 inches, and squinting ceased.

Ten syntonizations were given on this case one week apart. Same frequency and technic used. Near adduction 25 R-20. Near abductions 24-R-20. Vertical 5 up, 5 down. Ortho for distance. Exo 5 at near. Distance adduction 30-R-25. Abd. 10-R-9. Could hold her eyes straight without her glasses. Her mother made her take her glasses off the one whole day to see what would happen and the report was that there was no diplopia. This was after the eighth visit.

Case 4

Chas. M. Age 8. Monolateral right convergent squint, 30Δ deviation. Right handed. Rx: +8.00 O.S. +1.50 C. x 90, O.D.: and +6.50 S. +1.50 C. x 90 O.S. When I first saw him, his V.A. was 10/140 O.D.; and 20/35 O.S. At present O.D. is 20/40, and O.S. 2-/30. His eyes straightened in six weeks time, the major frequency being N/L- μυ, as he had had a bad case of hay fever along with being cross eyed, and was taking three syntonizations each week. I felt quite proud of this case because of such good results and believed that I was on the right track with base in technic. Child was dismissed for monthly observation, and syntonization was given eight months prior to learning through the auxiliary rotating prism technic that this case too may need some stimulation for reciprocal innervation, thereby expanding his amplitude of convergence, so I investigated his adduction and found that at near add was 5, abd. 20. I then applied the near technic, L-5 A.R. P., which could be fused only in the base in position. Syntonized with δ and 5 A.R.P. on O.D. (unreadable) Δs seen as both lateral sides, or the 5 base out could be fused an 11Δbase out was added which could be fused only in the 6Δ base out position at first, and later the 16 base out position was also fused. After Syntonization, near add. 12-R-8, near abd. 24-R.20.

I cannot report any further progress on this case at this time because of lack of sufficient number of visits. Once a month is hardly often enough to make any notice in this work, but presenting the case is essential.

Case No. 5

Master W. T. Age 7. Right monoliteral convergent squint deviation, 45 Δ made with amblyoscope. Extremely nervous. V.A. Rt. 20/70, and O.S.20/40. First syntonization L-ω combined with 20Δ base in for 20 minutes. Deviation afterwards, 20Δ.

Second syntonization one week later. Deviation before treatment 36 Δ, with some syntonic Rx as above except the last of the 20 minute syntonization gave υ. Deviation after syntonization 16Δ.

Third syntonization three weeks later. There was a relapse due to illness, and lack of being able to visit the office. Deviation was the same as when I first saw him. Nascentized L- αδ with 5 auxiliary rotating prism over the right eye, with 20 auxiliary prism stationary base out. The child selected the minimum of base out side – that is to say he fused the target with 15 Δ base out, and after 5 minutes fused on both lateral sides, and the 25 Δ position base out, was fused also. This was a surprise to me. I expected him to fuse the maximum first. The pair of 10 base out stationary prisms were reduced to a pair of sevens, and the frequency changed to υ, and again this time the child selected the minimum amount of base out prism, and 5 minutes later both sides were fused. Deviation after 20 minutes of Syntonization shoed 25 Δ.

Fourth syntonization one week later. He is treated the same as the third. Deviation before syntonization 30 Δ. Deviation after, 20 Δ. I put him on the squint korector for 15 minutes fusing a pair of 6 Δ base in…, and bulging the disc. Deviation after 15 Δ made with amblyoscope. There is nothing further to report on this case. The East Cleveland school nurse poisoned the child's mother mind. I have a letter to that effect.

Case No. 6

Miss A. L. Age 16. Right monoliteral exotropia 30 Δ. This case had 39 syntonizations with squint korector, stereo-rotoscope, and syntonizer without motion, or prisms over periods of six months. At this stage she could retain single binocular vision only under concentration. After the first syntonic application with motion, and 20 Δ base out L-μδ, she reported the longest duration of single binocular vision. Six more syntonizations made it permanent.

Case No. 7

Miss M.L. Age 20. This case when younger was a left convergent squint case. The Rx was: O.D. +3.25 S. +1.25 C. x 75; and O.S. +3.00 C. x 70. Distant phoria Exo 2, at near ortho. Squint korector diagnosis at 6 M., Add. 12-R-6, abd. 16-R.8. 5 base up, and 5 base down. Near ductions 12-R-6, abd. 12-R-3. αω pupil.

The first syntonization was αω combined with 5 auxiliary rotating prism on O.S. side. She could fuse the base in, but not the base out. It took five minutes before she fused the base out position. In the last 10 minutes of the 15 minute [1]syntonization she was fusing the entire combination. Squint korector analysis after the syntonization shoed Add. At 6 M. 20-R-8, and 14-R-8. This case is cited as one of those with a near phoria indicating tension, or hyperconvergence. The last refractive examination was three years ago. No duction analysis was made because her eyes had straightened. With her Rx she had 20/20 vision in the right eye and does not exercise her entire field of convergence, but only from the meter angle associated with her capacity of reciprocal innervation. She was given 6 syntonizations of N/L- αω alternated with L- μδ with auxiliary rotating prism and base out prism which expanded her amplitude of convergence from 24 Δ to 40 Δ. There is still much more that could be accomplished if she did not think her eyes were perfect.

Case 8.

Mr. J.S. Age 19. College student. Functional myopia. Reading uncomfortable. Difficulty in concentration and assimilation. Last refractive examination four years ago. Rx O.U. was -1.00 S. combined with a 2 Δ base in, which was used part time only. V.A. each eye was 20/140. The indicated Rx was -1.25 S. O.U. to give 20/20 both eyes. This case is cited because of contra-indicative analysis which sometimes causes confusion, and loss of time, and confidence. Static retinoscopy -1.75 S. O.U. Dynamic -.75 S. O.U. Subjective finding -1.25 O.U. 6 M. myo amplitudes with S.K. in motion, Add. 20-R-4, abd. 9-R-7, 3 up and 3 don prisms. Exo 1 at distance and at near 1/3/ M. Add. 24-R. 4, abd. 10-R.,4. Positive Rel. acc. 1/3 M. -1.00 S. Negative Rel. Acc. +3.00 S. Exo 5 with same. Fused at 16 inches. F.L. chart with 22 Δ base out using septum. Color fields red constricted. Pupils, normal. Fundus normal.

First syntonization L- μ combined with 5 auxiliary rotating prism on left side. The base in position was fused first. After 3 minutes added δS, and in next 5 minutes the base out position was also fused, which continued for 7 minutes. Total time of syntonization 15 minutes not including nascentizing. The target broke evenly in the vertical positions. N.V. after this syntonization was 20/40 O.U. Gave five more syntonizations as above except G/F- μδ, N.V. 20/30 O.U. Not a bad improvement from 20/140. Amplitude of convergence expanded from 29Δ to 59Δ. Note: 20/20 was accomplished on first visit with -.50 S. O.U.

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Case 9

Mr. D.S. Another college student, also another myope with practically the same symptoms, only his near point of convergence was 5 ½ inches, and showed eso at 1/3 M. Syntonized L-μδ, 3 auxiliary rotating prism on left. It was observed that the base in position was always h\the first, and the more easily used. During the next four syntonizations, A.P. base out was added, and followed by S. K. technic. At the end of 6 syntonizations he could fuse 96 Δ base out at 6 M. and 20 Δ base in at 1/3 M. Amplitude of convergence explained from 27 Δ to101 Δ, a reduction of .50 S. on both eyes, with 20/15 vision O.U.

Case 10.

Miss D, C, Age 16. Complained of constant frontal headaches, and diplopia at near point. V. a. 20/20 with nd without Rx of +.50 C. x 90 O.U. Myo fusion was Add. 25-R.6, abd. 8-R-4. 3 up and 3 down. Near add. 18-R.6, abd. 23-R.4. Exo 6 at 1/3 M. Near point of convergence by approach meted 10.

Syntonized L-δ combined with 3 auxiliary rotating prism on left side. As some as both 3 base in and base out could be fused, 14 Δ, A.P. base out was added. It took 5 minutes to fuse this combination which gave maximum of 17 Δ base out, and minimum of 11 Δ base out 3 Δ base up and down in each revolution. Squint korector diagnosis after 20 minutes syntonization showed 6 M. Add. 40, and 16 Δ base in at 16 inches. Near point of convergence 4 inches. Total time in office, 25 minutes. This syntonization was given when the glasses were delivered.

Case No. 11.

Mr. C. F. Age 65. S.P. type. Cataracts both eyes. B. P. 120/80. Urinalysis showed kidney congestion. V. A. with Rx: 20/100 O.D., and 15/300 O.S.

Seven orthoptic syntonizations were given as follows:
L-μυ for 20 minutes; then L- υ for 12 minutes followed by μθ for 19 minutes followed by μ π for 10 minutes; and the last was the same as the one just before it.

V.A. O.D. 20/50, O.S. 20/140. The above syntonizations were given over a period of two weeks. The patient left for Monroe, Mich. A strict orange juice diet was advised. Nothing further to report on it.

Case 12.

Mr. E. D. Age 63. Senile cataracts both eyes. V. A.: O.D. 20/70, O.S. 20/40. Ten syntonizations of L-μυ alternate with μδ on subsequent visits given. V.A. after second syntonizations showed O.D. 20/35, O.S. 20/30. This varied somewhat on the different visits, but no improvements beyond during the ten syntonizations. Patient appreciated what was accomplished. The motility was used without any prisms on these two cataract cases.

These case reports were given to Dr. Spitler last August. I have many more to report, but I felt these the most interesting.