



**YASNIY
VZOR**
pediatric eye clinics



IPOSC



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International Pediatric Ophthalmology
& Strabismus Council

Novel and alternative surgical techniques

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...ли искусственных
марки металла



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I have no financial interest to disclose

Mathematical model "Strabo" was invented by my Teacher and Head of Pediatric Eye Clinics "Yasnyi Vzor" and is used during all strabismus surgeries in clinic

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Aim of strabismus surgery

To achieve a maximal accuracy



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Efficiency of existing methods

Dosage techniques:

- Parks M
- Kaufmann H
- Kushner BJ
- Scott W,
- Keech R, Mash A
- Makhkamova H
- Avetisov E
- Maruo et all

Frequency of **REOPERATIONS** varies between **10% - 50%**

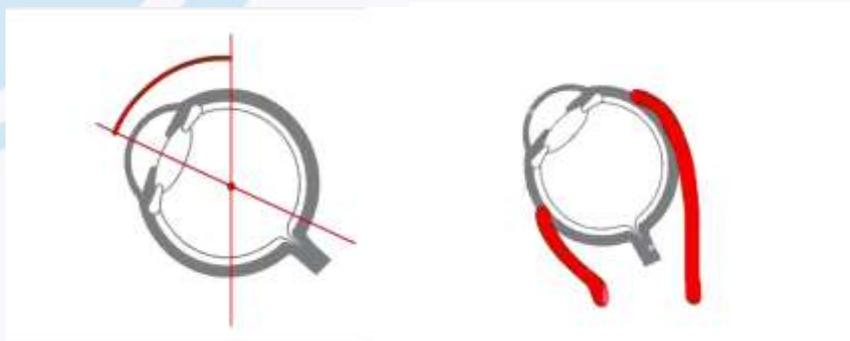
HYPEREFFECT – from **10%** to **25%**



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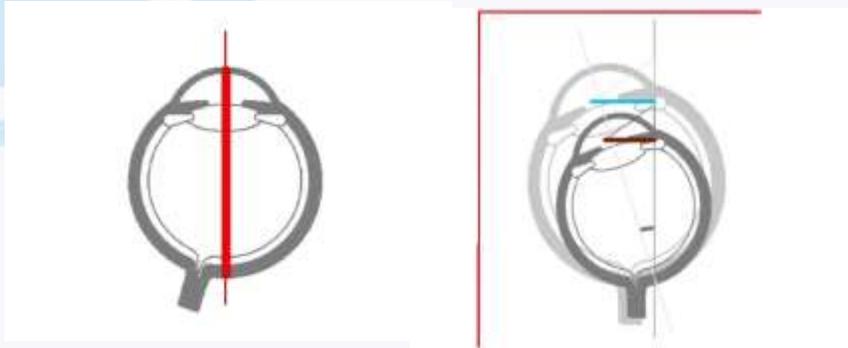
Objective angle of deviation



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Axial length of the eye



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Individual calculation of horizontal strabismus correction, mathematical model by Igor Aznauryan

RU EN

Select the mathematical model ↓

- Individual calculation of correction of horizontal strabismus by the technique of deep recession, mathematical model by Igor Aznauryan for unilateral and bilateral operations
- Individual calculation of the correction of horizontal strabismus by the technique of recession and folding, the mathematical model by Igor Aznauryan for unilateral operations

select eye → OD OS

base deviation angle:	<input type="text"/>	°	<input type="text"/>	°
anteroposterior axis:	<input type="text"/>	mm	<input type="text"/>	mm
transverse axis:	<input type="text"/>	mm	<input type="text"/>	mm
corneal diameter:	<input type="text"/>	mm	<input type="text"/>	mm
distance of equator:	12,07 mm		12,09 mm	

balance calculation

Simulate

1 mm

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 MD PhD Victoria O. Balasanyan
 MEng Olga A. Maksimova

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Comparison of the outcome of the surgery using our method and the standard method of surgery dosage
(total number of patients - 1524)

Mathematical model method (the proposed method of calculation)	Absolute value	Percentage %
Orthotropy (from -5° to $+5^\circ$)	1080	91,4
Residual angle (more than 5°)	97	8,2
Hypereffect (more than 5°)	5	0,4
Total	1182	100%

Common method of calculation	Absolute value	Percentage %
Orthotropy (from -5° to $+5^\circ$)	221	64.6
Residual angle (more than 5°)	114	33.4
Hypereffect (more than 5°)	7	2
Total	342	100%



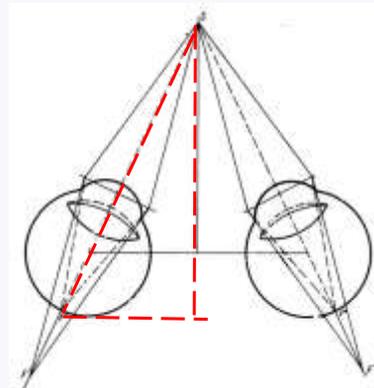
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Dosage of strabismus surgery using mathematical model «STRABO» by Igor Aznauryan is:

Individual calculating for each patient

Prediction of number strabismus surgeries for each patient

High accuracy ± 5 degrees



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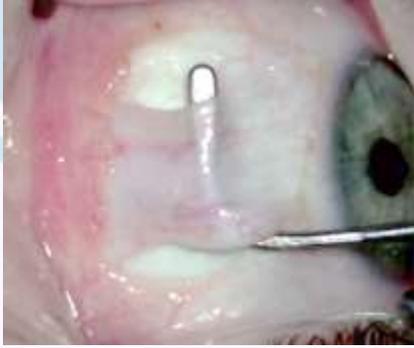
Minimal invasive strabismus surgery – what is that?






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Criteria of minimal invasive surgery



- 1 Preservation of vascular integrity
- 2 Preservation of the anatomical structure of the muscles and the muscular sheath
- 3 Use of thin suture material

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High-frequency radio wave knife



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Radio wave knife



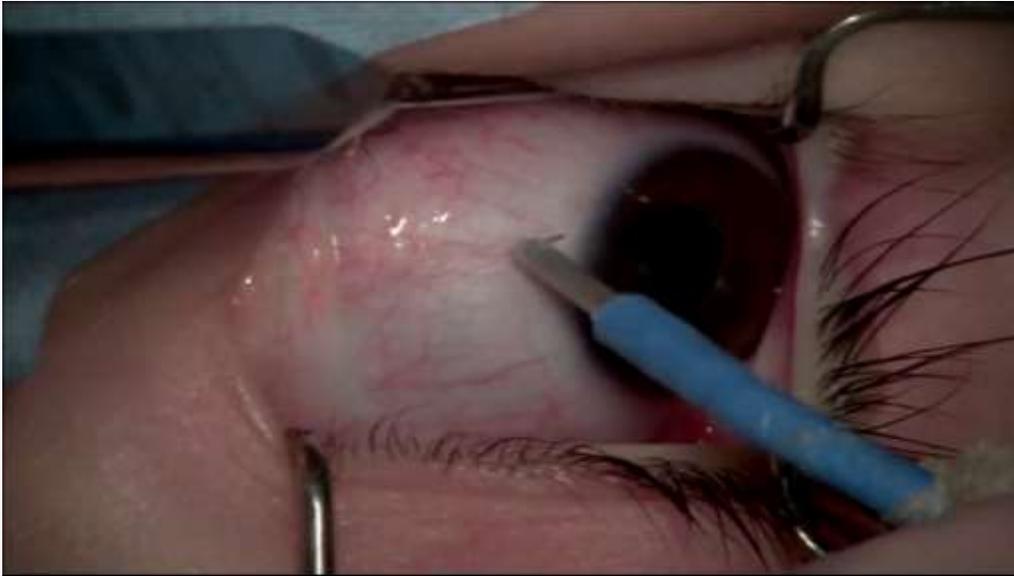
ЯСНЬ. ВЗОР

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Recession



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Results

Criterion	Conventional surgery technique (n=1525)			Minimal invasive surgery technique (n=982)		
	Up to 3 days	Up to 7 days	Up to 10 days	Up to 3 days	Up to 7 days	Up to 10 days
Conjunctival and eyelid edema	✓ Low			✓ Low		
	X High			X High		
Hyperemia	✓ Low			✓ Low		
	X High			X High		
Post-operative rehabilitation time (before allowed to attend school)	428 (28.1%)	641 (42%)	1097 (71.9%)	926 (94.3%)	606 (61.7%)	56 (5.7%)
	5 (0.4%)	879 (57.6%)	278 (28.3%)	932 (94.9%)	98 (10%)	50 (5.1%)

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1 day after surgery

Common technique



Using radio wave knife



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Thank you.



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