

# PATIENT TESTED. DOCTOR APPROVED.



Vivid Vision is a suite of visual rehabilitation software designed to treat patients with amblyopia, strabismus, and other disorders of binocular vision.

Combining the most advanced binocular vision tools on the market with tried-and-true treatment techniques used by providers such as optometrists, ophthalmologists, and orthoptists, Vivid Vision Clinical is in more than 350 clinics in the US, Canada, Europe, Australia, Asia and Mexico.

Our mission is to equip vision care professionals with the best possible tools for binocular vision rehabilitation.

## Features of the Vivid Vision system:

- Differential image rendering of visual stimuli for each eye independently
- All activities can be set to a patient's angle of deviation
- Vergence ranges and jump duction exercises are designed to increase fusion ranges
- Visual processing including sequential memory, visual memory, reversal of letters, and visual spatial relations
- Flexible and robust vision therapy exercises include distance and near activities



Vivid Vision is providing optometry with tools I imagined long ago, which will help us change more lives, more profoundly and more efficiently than ever before!

**Dr. Paul Harris**  
*Professor of Optometry, Southern College of Optometry*

Everybody thinks Vivid Vision is amazing, everybody thinks that it's a very cool experience. Now, looking at it from the therapeutic value, I'm a giant believer.



**Dr. Nathan Bonilla Warford, OD**  
*Bright Eyes Family Vision, Tampa, FL*



"I had a lot of people asking me about Vivid Vision and I kept telling them, "It's our silver bullet!"

**Dan Fortenbacher OD, FCOVD**  
*Wow Vision, Grand Rapids, MI*  
*OEPF Vice President*

# One solution for the clinic. One solution for the home.



## Vivid Vision for Clinics

Vivid Vision Clinical is a software and hardware bundle for treating amblyopia, strabismus, and vergence disorders.

It features games and activities designed to overcome suppression while improving visual acuity, fusion ranges, peripheral awareness, and depth perception.

It automatically updates with new games and tests, giving your patients access to the world's most advanced vision therapy tools.

### Clinical Features:

- Tools to assess and track changes in vision
- Exercises designed to take advantage of room-scale VR and positional controls
- Hand-eye coordination activities designed to improve vision performance and peripheral awareness

### Clinical Hardware:

- Windows PC preloaded with Vivid Vision software
- Touchscreen monitor for live control and patient activity mirroring
- Virtual reality head mounted display
- Gamepad controller
- Wireless mouse and keyboard



## Vivid Vision for Home

Designed to work seamlessly with Vivid Vision Clinical, Vivid Vision Home offers a suite of games, tests, and activities configured remotely by your eye care provider for ongoing home treatment.

Vivid Vision Home is our solution for increased compliance with home-based therapy, follow-up and maintenance therapy, and continuity of care.

### Home Features:

- Vision therapy exercises from the comfort of the patient's home and on their own schedule
- Provides supplemental and maintenance care as an alternative to in-office treatment
- Only Vivid Vision providers can prescribe Vivid Vision Home

### Home Hardware:

- Smartphone-based headsets and phones (GearVR, Daydream)
- All-in-one headsets (Oculus Go, Oculus Quest)
- VR-ready PC or laptop and headsets (Oculus Rift and Rift S + Touch controllers, HTC Vive + Vive controllers, or Windows MR)

# You work your magic. We've done the science.

An independent study from UVEA Mediklinik evaluated 17 adult refractive amblyopes (aged 17 - 69) that underwent 8 training sessions (2x / week, 40-minute sessions) using the beta version of our software (named "Diplopia"). In this study, only 50% of patients entered treatment with measurable stereoacuity. Following the treatment plan of eight 40 minute sessions, 90% of individuals had measurable stereoacuity.

A second independent assessment completed in British Columbia and presented at ARVO 2019. Thirty-four patients (age 3 to 69 years) were treated with Vivid Vision. Patients were a mix of anisometropic, strabismic, and combined aniso-strabismic amblyopia. Vivid Vision was only offered when occlusion therapy was unsuccessful due to poor compliance, plateau in treatment improvement, and/or regression in treatment.

After weekly 30-minute sessions with at least 3 tasks per session for 8 consecutive weeks (4 weeks for 3 participants), significant improvement in amblyopic eye visual acuity was observed in the full group, both age groups, and both etiology groups ( $p < 0.0001$ ). This confirmed a favorable outcome of treatment using the Vivid Vision software.

In addition to these studies we have ongoing research through UCSF, UC Berkeley, UNSW, SUNY Optometry and others.

## Published Peer-Reviewed Journal Articles

Ho, C., Shahin, Y.M., Reis, H., Grenier, S., Giaschi, D. (2019). "Binocular treatment for amblyopia in adults and children with low-pass filtering when occlusion therapy fails." Poster presented at: *Associate for Research in Vision and Ophthalmology Annual Meeting*; Vancouver, BC, Canada.

Backus, B. T., Dornbos, B. D., Tran, T. A., Blaha, J. B., & Gupta, M. Z. (2018). "Use of virtual reality to assess and treat weakness in human stereoscopic vision." *Electronic Imaging*, 2018(4), 109-1.

Žiak, P., Holm, A., Halička, J., Mojžiš, P., & Piňero, D. P. (2017). "Amblyopia treatment of adults with dichoptic training using the virtual reality oculus rift head mounted display: preliminary results." *BMC ophthalmology*, 17(1), 105.

## Other Published Papers

Fortenbacher, D. L., Bartolini, A., Dornbos, B., & Tran, T. (2018). "Vision Therapy and Virtual Reality Applications." *Advances in Ophthalmology and Optometry*, 3(1), 39-59.

Backus, B. T., Tran, T., & Blaha, O. J. (2017). "Clinical use of the Vivid Vision system to treat disorders of binocular vision".

Blaha, J., & Gupta, M. (2014, March). "Diplopia: A virtual reality game designed to help amblyopics." *In 2014 IEEE Virtual Reality (VR)* (pp. 163-164). IEEE.

Ziak et al. *BMC Ophthalmology* (2017) 17:105  
DOI 10.1186/s12884-017-0820-8

BMC Ophthalmology

RESEARCH ARTICLE Open Access

**Amblyopia treatment of adults with dichoptic training using the virtual reality oculus rift head mounted display: preliminary results**

Peter Žiak<sup>1,2\*</sup>, Anders Holm<sup>1,2</sup>, Jura Halicka<sup>1,2</sup>, Peter Mojžiš<sup>1,2</sup> and David P Piňero<sup>1,2</sup>

**Abstract**

**Background:** The gold standard treatments in amblyopia are penalizing therapies, such as patching or blurring vision with atropine that are aimed at forcing the use of the amblyopic eye. However, in the last years, new therapies are being developed and validated, such as dichoptic visual training, aimed at stimulating the amblyopic eye and eliminating the interocular suppression.

**Purpose:** To evaluate the effect of dichoptic visual training using a virtual reality head mounted display in a sample of anisometropic amblyopic adults and to evaluate the potential usefulness of this option of treatment.

**Methods:** A total of 17 subjects (10 men, 7 women) with a mean age of 31.2 years (range, 17-69 year) and anisometropic amblyopia were enrolled. Best corrected visual acuity (BCVA) and stereoscopy (Stereo Randot graded circle test) changes were evaluated after 8 sessions (40 min per session) of dichoptic training with the computer game Diplopia Game (Vivid Vision) run in the Oculus Rift OC DK2 virtual reality head mounted display (Oculus VR).

**Results:** Mean BCVA in amblyopic eye improved significantly from a logMAR value of 0.58 ± 0.35 before training to a post-training value of 0.43 ± 0.38 ( $p < 0.01$ ). Forty-seven percent of the participants achieved BCVA of 20/40 or better after the training as compared to 30% before the training. Mean stereoscopy changed from a value of 263.3 ± 135.1 before dichoptic training to a value of 176.7 ± 152.4 s of arc after training ( $p < 0.01$ ). A total of 8 patients (47.1%) before dichoptic treatment had unmeasurable stereoscopy while this only occurred in 2 patients (11.8%) after training.

**Conclusions:** Dichoptic training using a virtual reality head mounted display seems to be an effective option of treatment in adults with anisometropic amblyopia. Future clinical trials are needed to confirm this preliminary evidence.

**Trial registration:** Trial ID: ISRCTN62086471. Date registered: 13/06/2017. Retrospectively registered

**Keywords:** Amblyopia, Dichoptic training, Virtual reality, Stereopsis, Oculus rift

**Systematic approach to the treatment of binocular dysfunction using virtual reality**

Benjamin T. Backus, PhD, FCOVD-A, Team Train, OD; Brian Dornbos, OD, MAOD; James Blaha, MSc; Monica Gupta, Anna West, OD; Monica Fehs, Vivid Vision Inc., San Francisco, CA

**BACKGROUND:** Amblyopia has been found to have diverse causes and is a complex problem, but better a unified approach to treatment is needed. This approach is based on the principles of binocular vision and the use of virtual reality to provide a systematic approach to the treatment of binocular dysfunction.

**PRINCIPLES OF HOME OPERATION:** All patients with amblyopia, with or without strabismic amblyopia, will benefit from a systematic approach to treatment. The approach is based on the principles of binocular vision and the use of virtual reality to provide a systematic approach to the treatment of binocular dysfunction.

**HOME TREATMENT EQUIPMENT:** The equipment used for home treatment is the Vivid Vision system, which includes a computer, a virtual reality headset, and a set of eyeglasses.

**EXAMPLE: INTERMITTENT EXTRINSICA:** This example illustrates the systematic approach to the treatment of intermittent extrinsic amblyopia. The approach is based on the principles of binocular vision and the use of virtual reality to provide a systematic approach to the treatment of binocular dysfunction.

**REFERENCES:** A list of references is provided at the end of the document.

**Binocular treatment for amblyopia in adults and children with low-pass filtering when occlusion therapy fails**

Emily Ho<sup>1</sup>, Youcef M. Shahin<sup>1</sup>, Henry Reis<sup>1</sup>, Christian Grenier<sup>1</sup>, David P. Giaschi<sup>1</sup>

**Background:** Amblyopia is a complex problem, but better a unified approach to treatment is needed. This approach is based on the principles of binocular vision and the use of virtual reality to provide a systematic approach to the treatment of binocular dysfunction.

**Methods:** A total of 17 subjects (10 men, 7 women) with a mean age of 31.2 years (range, 17-69 year) and anisometropic amblyopia were enrolled. Best corrected visual acuity (BCVA) and stereoscopy (Stereo Randot graded circle test) changes were evaluated after 8 sessions (40 min per session) of dichoptic training with the computer game Diplopia Game (Vivid Vision) run in the Oculus Rift OC DK2 virtual reality head mounted display (Oculus VR).

**Results:** Mean BCVA in amblyopic eye improved significantly from a logMAR value of 0.58 ± 0.35 before training to a post-training value of 0.43 ± 0.38 ( $p < 0.01$ ). Forty-seven percent of the participants achieved BCVA of 20/40 or better after the training as compared to 30% before the training. Mean stereoscopy changed from a value of 263.3 ± 135.1 before dichoptic training to a value of 176.7 ± 152.4 s of arc after training ( $p < 0.01$ ).

**Conclusions:** Dichoptic training using a virtual reality head mounted display seems to be an effective option of treatment in adults with anisometropic amblyopia. Future clinical trials are needed to confirm this preliminary evidence.

**Convergence Insufficiency Treatment using Virtual Reality**

Benjamin T. Backus, PhD, FCOVD-A, Team Train, OD; Brian Dornbos, OD, MAOD; James Blaha, MSc; Monica Gupta, Anna West, OD; Monica Fehs, Vivid Vision Inc., San Francisco, CA

**BACKGROUND:** Convergence insufficiency is a common binocular vision disorder that affects the ability to maintain binocular vision during near work. This approach is based on the principles of binocular vision and the use of virtual reality to provide a systematic approach to the treatment of binocular dysfunction.

**TREATMENT TASK AND STIMULI:** The treatment task involves a virtual reality game that requires the patient to maintain binocular vision during near work. The stimuli used in the game are designed to challenge the patient's ability to maintain binocular vision during near work.

**RESULTS:** A total of 17 subjects (10 men, 7 women) with a mean age of 31.2 years (range, 17-69 year) and convergence insufficiency were enrolled. The results of the treatment are shown in the following table:

Subject	Pre-treatment	Post-treatment
1	100%	100%
2	100%	100%
3	100%	100%
4	100%	100%
5	100%	100%
6	100%	100%
7	100%	100%
8	100%	100%
9	100%	100%
10	100%	100%
11	100%	100%
12	100%	100%
13	100%	100%
14	100%	100%
15	100%	100%
16	100%	100%
17	100%	100%

**REFERENCES:** A list of references is provided at the end of the document.

# Become a Vivid Vision Provider

Vivid Vision is committed to the success of our partner clinics. With resources like our patient referral program and co-branded online marketing, we're connecting hundreds of new patients to providers - treating more patients, and driving practice growth.

We offer a variety of purchasing options, including flexible financing and leasing plans for every clinic size and type.

## Training by Clinical Professionals

Our team of optometrists and certified vision therapists provide expert on-site training and ongoing support to you and your staff.

## Premium Support

Continuous content updates, HIPAA-compliant cloud data storage, priority remote and on-site tech support, extended warranties and consultations with our clinical team.

## Online Marketing to Patients

Our "Doctor Locator" portal features clinic directories from all over the world. Combined with daily social media marketing, robust search engine optimization, and automated patient referral channels, Vivid Vision drives more patients to your clinic than any other referral service.

## 30 day Free Evaluation

Make sure the system is a good fit for your practice and meets all of your expectations. If not, send it back!



# Connect with your patients. Grow your practice.

Let's face it-- word of mouth only gets you so far when trying to grow your practice.

You're in this business to help people, not to take out an ad in the local paper, produce a TV commercial, or rent a "wacky wavy inflatable tube man".

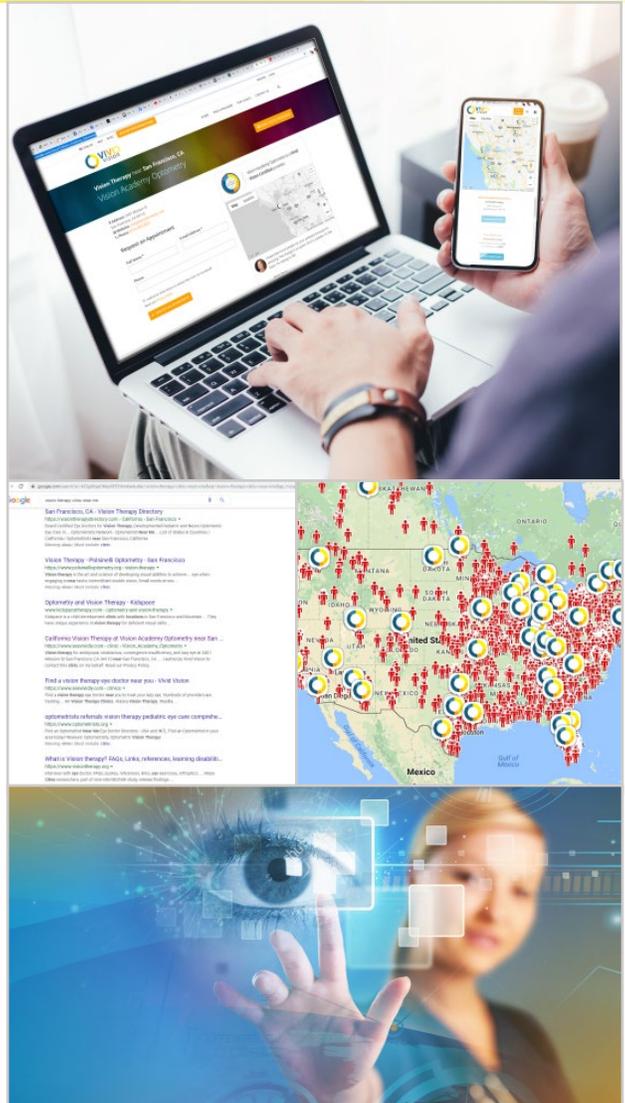
This is where Vivid Vision's Patient Referral program and Doctor Locator portal come in.

Over 25,000 patients have used our Doctor Locator to find a vision therapy practice convenient to their location. Our SEO experts are constantly fine tuning and tweaking our system so that clinics listed in our "Find a Provider" page are in the top 5 results for Google searches such as "vision therapy clinic in my area", "amblyopia treatment", and "how do I treat lazy eye".

Once you join our Doctor Locator portal, your clinic will appear in our Doctor Locator search results when someone within a 1 or 2 hour drive of your clinic does a search for a vision care provider.

From there your clinic's bespoke "Make an Appointment" booking page is just a click away. Through our daily, weekly, and monthly social media and marketing campaigns our Doctor Locator portal has a constant stream of inquiries to our site... and from there, to your clinic.

It's all managed by us - you don't have to do anything but confirm new appointments.



## How does it work?



Patient searches for a vision therapist, optometrist, or information about vision disorders. Our "Doctor Locator" is in the top three results!



Patient clicks on our "Doctor Locator" page and enters their zip code and contact info.



They're provided with a list of vision therapy clinics in their area and prompted to make an appointment.

*One of these clinics can be yours!*

Take a look at our live map of both patients and providers and see how it works at [https://www.seevidly.com/clinic\\_signups](https://www.seevidly.com/clinic_signups)

# A Message From The CEO

Dear Doctor,

As you know, untreated Binocular Vision impairments affect tens of millions of adults and CEO:children in the USA alone<sup>1</sup>. Most of these patients have not had the opportunity to have their conditions adequately diagnosed and treated. Our goal is to change that.

As a person who grew up with amblyopia and strabismus, I struggled my entire life with binocular vision issues. As a kid, I took my patch off every time an adult left the room, I peeked out of the side to watch TV, and I resisted all attempts to get me to do VT exercises regularly.

In 2014, inspired by new research into the neuroplasticity of the brain and the release of new VR technology I made an early prototype of what is now Vivid Vision. Using that prototype I was able to gain stereopsis for the first time in my life. I founded Vivid Vision so that the millions of people with binocular vision issues like mine could get access to better and more powerful treatment.

Since launching in 2015, we are now in over 350 eye clinics around the world. The person who brought this info packet to you is one of nearly 18,000 people who visited our website looking for a provider of Vivid Vision© - Vision Therapy in Virtual Reality™.

They were unable to find a provider near them, so they want you to be the first doctor in their area to offer Vivid Vision. This person, and many others, are waiting for a clinic like yours to take the lead in offering the most powerful vision therapy tool available today.

Patients in your area are ready to set appointments with you. Keep reading to learn why Vivid Vision will be a great addition to your practice.

Sincerely,

A handwritten signature in black ink, appearing to read 'James Blaha', with a stylized flourish at the end.

James Blaha

<sup>1</sup>[www.covd.org/resource/resmgr/ovd41-1/editorial\\_binocularpandemic.pdf](http://www.covd.org/resource/resmgr/ovd41-1/editorial_binocularpandemic.pdf)

# Take the Next Step

If you're interested in finding out how to incorporate the most advanced virtual reality vision therapy system on the market into your practice, go to [www.seevividly.com/for\\_clinics](http://www.seevividly.com/for_clinics), or give us a call at +1 (877) 877-0310 to book your demo and get a quote!

You can also fill out this form and fax it to us at (888) 965-8846. We will contact you!

Phone Number: \_\_\_\_\_ Contact preference  phone  email

Email: \_\_\_\_\_

Referred by: \_\_\_\_\_

Are you interested in scheduling a demo of Vivid Vision?:

Interested

Not Interested

Other: \_\_\_\_\_

Are you currently practicing Vision Therapy?

In-office + Home

Only Home

No

Are you attending any conferences in the future? (please list):

\_\_\_\_\_

Are you affiliated with any professional organizations? (please list):

\_\_\_\_\_

Questions/Comments:

\_\_\_\_\_

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