EBU
Low Vision Conference
Slovenia, June 2018

Dr Krister Inde, Sweden: “Low Vision Approaches at Different Stages in Life”
Krister Inde, MA, PhD hc

- Expert patient in low vision rehabilitation in Sweden and Jordan: visionme.org
- "Low Vision Training” 1975/1979
- "See Bad Feel Good” 2003
- "SEE MORE” 2005
- "SEEnior” 2008 for older VIPs at Linnaeus University
- President of LHON Eye Society: Leber’s Hereditary Opticus Neuropathy with CFL since 1966
Low Vision in Sweden with High Priorities
Incorporate “low vision”!

- The Swedish Association of the Blind changed names in 1977
- Swedish Federation of Visually Impaired
- Less than 0,1 or 6/60 leads to
- Legally Blind, me?
- No, illegally sighted!
Sweden 10 million inhabitants
Regional centers

- 33 Low Vision Centers in the 27 regions – 350 full time professionals
- The largest LVC in Stockholm has more than 85 “hard to find” professionals
- Referrals by ophthalmologist
- VA 0.3 and lower
- Service - almost free!

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Low Vision Clinic in Jönköping

- Started 1976
- 337,000 inhabitants in the county

Staff: In total 14 team experts involved today
  - Optometrists
  - Low vision teachers/OM
  - Occupational Therapists
  - Special Educators
  - Social counsellors
  - IT technician and instructors
  - Secretaries
  - All VIPs welcome!
Low vision center: Patients

- The province population about 340 000
- 400 new referrals every year from ophthalmologists
- 4000 visits
- Always try with optical devices and training first
We started early
1970: Örjan Bäckman and Krister Inde
1975 “Low Vision Training”, it was published in English 1979
Kids, adults, seniors...

- LOW VISION WORKSHOP 1978
- OLSO WORKSHOP IN 2004
- SLOVENIA 2018

The difference between re/habilitation of persons with congenital low vision compared to persons with acquired low vision.

The first group with congenital low vision should focus on training cognitive and perceptual abilities while the second group should focus on psychosocial aspects along with physiological, technical and educational adaptations to less vision than before.
When should devices and training be introduced for children?

At the age of 2.5-3 years old!

Start with tubes, caleidoscope and low power telescopes: 4X is preferred.
For your eyes only... but there is much more to vision than the eyes.
Visual Desire

A feeling of joy and desire in seeing, even if the picture is blurry – a prerequisite for early training in children
Visual Efficiency

Methods that improve your use of low and residual vision with higher skills and efficiency.
Visual Strategies

Methods adapted to the symptoms and interests. Improves the use of residual vision: Eccentric viewing, manage nystagmus, small field scanning, close reading, EST eye saccadic training.
Learn to interpret poor images correctly using older “stored” clear images from closer distances, or using a telescope. Understand what you see.
Visual confidence is at its peak when you can make the right decisions at the right time using few visual and other cues.
Medical Aspects of Low Vision Rehabilitation

- Referral from ophthalmologist is essential.
- Symptoms are more important than diagnosis.
- Today is today and tomorrow is later.
- “LVR is not harmful to your eyes!”
ADULTS LOSING SIGHT

Suffering from loss of normal vision
SEE BAD FEEL GOOD 2003

"MY EYES ARE BAD BUT I AM VERY GOOD"
The Five LV Groups

1. Central scotomas BCVA
   <20/200 (<0.1)
2. Abnormal Nystagmus
3. Peripheral restrictions
4. Reduced and Low visual acuity
   20/200 – 20/60 (0.1-0.3, - 0.7)
5. Visual Field Loss (VFL)
The Normal Reading Process

- Normal reading involves small, fast movements of the eyes with pauses.
- Reading takes place during the pauses, between the saccadic eye movements.
- Pauses are called fixations.
- Fixations involve 95% of the reading process.
- The wider the fixation field, the faster you read, since a wider fixation field contains more characters/fixations.
The Low Vision Reader...

- Persons in the first three groups must learn new behaviours in order to use optics and devices according to the (new) conditions of the eyes.
- New techniques involve training – low vision training.
- Trial-and-error, do it your own way.
- Or systematic training in a training plan with strict objectives.
The Eccentric Club – Who are the members?

- Visual acuity < 20/200 (<0.1)
- Central visual field loss as a defined scotoma
- Normal retina in the periphery
- Normal eye movements
Abnormal Nystagmus often diagnosed early

- Eye movements are out of control
- Reduced visual acuity - amblyopia
- Congenital in most cases
- Horizontal, vertical, undulant, rotatory?
Peripheral Restrictions of the Visual Field

- Tunnel vision $< 30^\circ$
- Orientation and mobility using EST
- Visual acuity $> 20/200$ ($<0.1$) to 20/20 (1.0)
Low (and Reduced) Visual Acuity

- Low visual acuity (0.1 – 0.3)
- Reduced visual acuity less than 0.7
- Normal eye movements
- No defined scotomas in the retina
- Normal reading background before loss of visual acuity
- Reach 0.5 for reading!
Hemianopia and quadrantanopia from Stroke, TBI or Postop Brain Tumor
Eye Saccadic Training, EST, with VISIOcoach and head movements to compensate for VFL, Vision Field Loss
Eccentric Viewing

Should fixate above or below the central scotoma when they read.
Eccentric Viewing
Demands Magnification

Compensate for the lower density of cones outside of macula with high magnification 8X or more in a frame.

8X - 12X
Eccentric Viewing Training

Lesson One

- Fixate above (or below) the line of text in order to avoid the central scotoma.
- The best retinal area for eccentric viewing is just outside the central scotoma.
- Move the text in front of the best eye, maintaining the focal distance and the eccentric viewing angle.
- Start with single words and word lists with fixation lines.

red       sad       can
Fixation Lines Training

green come over

sober event roman
Avoid the central scotoma – concentrate on fixating above or below the line of text.
Calculation of My Eccentric Distance From the Text

\[ \tan 7^\circ \times 25 \text{ mm} = 4 \text{ mm} \]
Ergonomics to Avoid Neck Pain and Headaches

- Optimal illumination conditions (individual assessments) are needed in some cases and in all cases to be more comfortable.
- Avoid neck problems by using the right positions and devices.
- Train to use reading supports - stands and manuscript holders at different angles.
- “Elbows on the table” works fine.
Can MoviText help you?

MoviText makes the text movement easier when training eccentric viewing. Like this:
Reading speed

Läshastighet mätt vid 4 tillfällen

Läshastighet (ord/minut)
What’s the Purpose? Goals to Reach...

- Training eccentric viewing takes two to three months...
- ...reading speeds up to 100 w/m.
- Good reading perseverance, possible to read for half an hour, most important for quality of life.
- Find the right magnification and devices for different tasks: SmartPhone!
- Magnification correction with optics, SmartPhone and CCTV.
The New LHON Project

- **www.exfix.se** EV Training, please!
- **www.lhon.se** with films and books about vision loss like
  - **LIFE RETURNS** — what happens?
  - **LOOK FORWARD** — learn and live!
  - **STRONGER TOGETHER** — family support
PROJECT SEEnior

- With Focus on *dry AMD Patients*
- Follow the patient along the decrease of production of cones
- Always be able to use vision for reading and orientation
Den lilla boken om Synen

Om du vill veta mer om dina ögon och synen när du blir äldre

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Project SEEnior
Scandinavian Low Vision Services – similarities and differences in a well established Low Vision Service system
Jørgen Gustafsson, Kristin Inde, Kirsten Baggeen, Kirster Kobbega, Gaute Molin Jensen, Jytte Mejling and Anne Tornta,
Vision Enabling Lab., School of Optometry, University of Kalmar, Sweden.

Objectives
The objective of this study is to collect information about the similarities and differences in relation to low vision (LV) centers concerning staff, budget for devices and service delivery in Sweden, Norway and Denmark – Scandinavia.

Start ups
The first low vision center in Denmark was started in 1982, but already in 1960 a Government Eye Clinic started eye care and optometric rehabilitation as a national service. In Sweden the first LV center was opened in 1970 and in Norway in 1979. All the LV centers work with all age groups and with persons from visual acuity 0.3 to total blindness using all kinds of optical and compensatory devices and training.

Financial support
Low vision centers are mainly financed by public subsidies and are part of the health care in the social and rehabilitation organization in defined regions. Only a very small part of the fees are paid by the persons attending.

Method
A questionnaire was sent to the 69 LV centers in Scandinavia concerning staff employed in full time positions. Also number of optrometrists, training staff, social workers and other staff members were reported. Other items asked for were budget for devices, upper limit in visual acuity (VA) for referral and population in each region. All the LV centers responded.

Results
Staff
There are two professionals in full time positions at the 69 Scandinavian LV centers. Norway has the smallest number of professionals employed, partly compensated by the community based educational support service, state courses and services through NGOs. Sweden has 349 staff members. Denmark 290 and Norway 52 persons employed (fig 1 & 2).

Scandinavia: 20 million inhabitants
600 LV professionals
69 LV centers

The differences in number of staff members are more evident when a comparison is made to the number of inhabitants to serve (fig 3). In Sweden and Denmark the number of inhabitants per professional is approx. 20,000 and 28,000 while in Norway the number of inhabitants to serve are more than three times higher.

Budget
Budgets for devices were only possible to obtain for the centers and regions in Sweden (fig 4). The economical resources in Sweden vary from region to region per capita, due to different political policies.

Due to changed/organization in Denmark it was not possible to collect budget data. In Norway low vision devices are prescribed without any budget restrictions according to “the law of learning of adults” and the good state finances.

Conclusions
Service delivery in relation to staff is similar in Sweden and Denmark. The lower number of staff in Norway can be explained by and compensated for by the use of private optometrists and community based trainers.

The low vision service in Scandinavia is well established and could serve as a role model for other countries and continents.
OM DET BLIR SVÅRT ATT LÄSA

. .. KOM NÄRMARE

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LÅG SYNSKÄRPA KRÄVER FÖRSTORING

läs text med varigen läseavstånd på normalt lesavstånd, 33-40 cm

Skapa text med varigen läseavstånd på normalt lesavstånd, 33-40 cm


Ingen förstoring

ADD +2,5-3,0D 33-40 CM

För att bekämpa synskärapa bör man alltid använda en något större förstoring. Detta kan hjälpa till att minska synskärapa.

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EN GÅNGS FÖRSTORING, 1X  ADD +4D  25 CM

Es gängs förstorning med fyra distripar i gassen
på 80 cm

1,5 GÅNGS FÖRSTORING, 1,5X  ADD +8D  16,6 CM

1,5 gångs förstorning

Jag tände partbilen och mindes sedan att revolvar fanns antingen i min eller i lagret.

Jag fick hitta en revolvar vid bilen i garage.

Jag tände partbilen och mindes sedan att revolvar fanns antingen i min eller i lagret.

Jag fick hitta en revolvar vid bilen i garage.
Ett normalt läseavstånd gör det möjligt att läsatext.

En kall dag i januari knallade skott någonstans vid torget. Jag satt vid mitt skrivbord och skrev fridsamt på en artikel om mr Lamar Fariowe och hans återförening nyligen i Chicago med sin falsidärmsbataljon, när en kula knallade en förstörd sox meter från mitt huvud. En ryttare fick däremot skott i huvudet.

En kall dag i januari knallade skott någonstans vid torget. Jag satt vid mitt skrivbord och skrev fridsamt på ett plane. Lamar Farlowe och Rense återförenade nyligen med sin fallskärm och en kula krossade en sex meter från mitt

Jag tömdes portföljen och minnes sedan att revolvern fanns antingen i min bil eller i lägenheten. Jag var obeväpnad och kände mig som en ynkrygg.
En kall dag i januari knallade skott någonstans vid torget. Jag satt vid mitt

Min kula var den andra eller tredje i en ganska}

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Jag var så rädd att jag inte
NÄR DU SKA LÄSA, SKRIVA OCH

ALLT MÖJLIGT

© Krister Inde
WATCH TV CLOSE OR...
SEE AND SEW
KNIT WITH OPTICS
CUES MAKES THE IMAGE
HEADHELD MAGNIFICATION

© Krister Inde
ENJOY GOOD ART
THE CAMERA TRIC
LIGHT IS RIGHT
NO PAIN IN THE NECK

© Krister Inde
NO BLINDING MORE CONTRAST
OBJECT MAGNIFICATION
Introduktion och träning av förstoringarande TV-system

Läsning, skrivning och vardagens ting. Hemma, i skolan och på jobbet.

Arne Torne och Hanna Sandström Romlo
Översättning och bearbetning Jenny Öland och Krister Inde
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Vision and Driving

- Fitness to Drive Centers in NL
- Vision and Driving – test to drive by Driving Test in NL and many other countries. BTS, Bioptic Telescopes allowed in Netherlands. Can drive in all EU from January 2017. 50% pass the tests. 90% after training.

Sweden tests driving with Simulator Test: 67% will pass with VFL

www.smskalmar.se
ALL IS NOT ABOUT VISION

What you see is an image that has a name.

But what does it mean? Seeing is learning to see (Barraga). Denotation and connotation.

“Generous and serious”

Welcome to Sweden and see for yourself one day. Nothing is so good so it cannot be made better...
THANK YOU!

The voice of blind and partially sighted people in Europe