

Distraction Blindness

page 1 of 2

By Emer prof of Ophthalmology Peter Heilig University of Vienna

January 2025



Children, since the advent of daytime running lights (DRL), by far the most at-risk road users, are often conspicuously 'overlooked', or better put, not 'perceived', particularly on so-called 'protective routes' such as pedestrian crossings. (see Ban of DRL 2007 Austrian Ophthalmological Society).

Distraction blindness, an almost physiological phenomenon, is partly to blame for this unacceptable situation.

An excess of visual stimuli can overwhelm our 'visual short-term and working memories'.

This ('overflow') can manifest itself in fatal cognitive distraction or even complete perception failure.

Additional distractions understandably make the situation worse; many overbright, blue short-wave dominated DRLs radiating in all directions (isotropic) are the epitome of poorly developed vehicle lighting systems on our roads today putting inconspicuous people in danger.

"I drove towards an apparently empty pedestrian crossing - and at a reduced speed because I know the route well and expect that there will be many children (wearing brightly coloured protective vests) crossing the road at this point on the way to school! I am devastated!"

This driver was found guilty, sentenced, severely punished and will probably be plagued by severe remorse for the rest of his life.

The collision of a bus with a train illustrates particularly clearly the danger of distraction caused by artificial light stimuli in daylight. The bus driver knew the timetable, saw the train coming and yet did not notice it.

Neither jurisprudence nor risk and accident research nor insurance companies have seriously addressed this sensitive issue.

There is no need for sophisticated statistical analyses and complex scientific studies to "prove" the limited capacity of our visual and cognitive systems.

Grand magic (neuro- magic) demonstrates similar things on a continuous basis: e.g. the magic making the Statue of Liberty disappear, over-accentuation of fully protected road users but go mentally unnoticed.

Threshold:

No suprathreshold stimulus should be amplified.

Every photon of senselessly wasted energy must be avoided.

E-scooters, e-toys and bicycle lights now dazzle just as painfully as car headlights and DRL.

Flashing beacons on emergency vehicles inevitably became brighter (and louder, horns in pedestrian zones are far above pain thresholds and provoke cardiovascular complications).

Forty-eight-tonne EU approved trucks are equipped with countless "eye-catching lights".

The over-bright blinding light experiment on vehicles has proved to be a disaster - 'it has failed to stand the test of time'.

Even weak light stimuli inevitably trigger reactions, including cognitive processes in the peripheral parts of the visual field, which can become a serious problem.

In nature, almost all visual stimuli are balanced - in equilibrium. Human reflex instinctively avoids looking at the sun.

Before driving with lights on during the day was imposed, there was a sensory-physiologically acceptable distribution of stimulus intensities in road traffic, which made it possible to recognize unexpected, unlit objects relevant to traffic - an extreme example: pedestrians, children and animals, even lost cargo on the highway.

Eye-gaze retention - a favourite topic of some accident researchers - is not necessary to trigger distraction blindness. Even when looking straight ahead, an excess of peripheral moving light stimuli can virtually disrupt the perception system of the eye.

Tolerable (blue-free) light installations in road traffic scenarios has been necessary for DECADES:

Avoiding any kind of glare.

Yellowish light would be a desideratum.

Avoiding isotropic geometries including stray light rays.

Avoiding any ray of artificial light during the day.

If the daylight intensity is too low: use glare free dipped headlights.

So-called (yellow) night driving glasses: not recommended.

Reduction of high-energy, dazzling and distracting short-wave wavelengths, including reduction of excessive intensity of traffic lights, including emergency vehicles.

Comparable to the renaturation that hydrologists encourage (or strongly recommend), e.g., after a serious torrent, a return to the natural physiologically sensible state is required.

Daytime Running Lights (DRL) and LED lights should be banned. Worldwide.

Addendum

In the 1950s, Brindley reported that blue light cannot make a significant contribution to central vision. WHY? The blue-sensitive cones are missing in the centre of the retina.

Blue light dazzles, irritates, distracts, scatters, it is not focused at the retinal level (circles of confusion), and is high in energy - beware of potential phototoxicity.

The EU daytime running light directive would be difficult to reconcile with the Declaration of the Rights of the Child of November 20, 1959, according to which children enjoy special protection.

Article 2, paragraph 1 of the International Covenant on Civil and Political Rights of December 19, 1966 also grants every child the right to those protective measures by society and the state that their legal status as a minor requires.

A risk in particular to children due to state-mandated daytime running lights could contradict these protective duties and rights.

Attorney-at-Law Dr. G. G. SANDER, M.A., Mag. rer. Publ.

Edited by Roy Milnes <https://lightmare.org>