

How to See Better on Road and Track

NNJR Track Classroom Series

May 5, 2020



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Disclaimer

The techniques shown here have been compiled from experienced sources believed to be reliable and to represent the best current opinions on driving on track. But they are advisory only. Driving at speed at Lime Rock, or any other track, requires skill, judgment and experience. These techniques assume the reader has high performance driving knowledge and applies them as applicable to their level of driving experience.

High-performance driving can be very dangerous, carries inherent risks and may result in injury or death. NNJR and PCA make no warranty, guarantee or representations as to the absolute correctness or sufficiency of any representation contained herein. Nor can it be assumed that all acceptable safety measures are contained herein or that other or additional measures may not be required under particular or exceptional conditions or circumstances.



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NNJR Agenda



- Where to Look?
- How We See
- Exercises to Improve
- Reference Points
- Car Adjustments
- When to Look?



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NNJR Where to Look?



- “Classic” Advice
 - Look (far) ahead (20 sec)
 - Look where we want to go
- Focus
 - Approaching brake zone, look at end of braking (EOB)
 - Beginning of braking (BOB) is peripheral vision
 - Approaching corner, look at turn-in point
 - Approaching turn-in, look at apex
 - Etc.
- Use Reference Points (RPs)
 - Cones
 - Fixed items: fence, curb, tire marks, etc.



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NNJR Look Where We Want to Go!



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NNJR What Does It Mean to “Look”?

- **Focus**
 - Central vision, 1 second or more
- **Peripheral**
 - Side/surround vision
- **Glance**
 - Central vision, 1/2 second or less
- **Mental**
 - Your “mind’s eye”

Source: Central Indiana PCA

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NNJR Example

Chuck Tucker, Cayman GT4, 09/10/2017
Putnam Park, Lap 7/15
Sector – Sector 1

Total Time: 0:08:19.8
Lap Time: 00:08.3

Glance
Mental
Focus
Peripheral

Source: Central Indiana PC

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NNJR Poll

- Where to look (focus) when at apex
 - Track Out
 - WOT (Wide Open Throttle)
 - Down the Straight
 - Mirrors
 - Flag Station

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- Where to Look?
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- Exercises to Improve
- Looking around corners
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NNJR How We See



- Vision “zones”



Focus

Text

Color


Motion

** Speed Secrets 231, Power of the Periphery, by Andrew Rains*

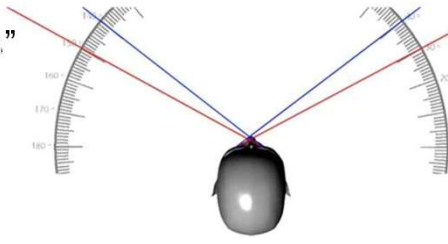
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NNJR "Peripheral Vision"




- Classic advice = Focus ahead and use peripheral vision when close to RPs
- Critical for "track awareness"
 - Mirrors
 - Cars, objects in motion
- Part of depth perception



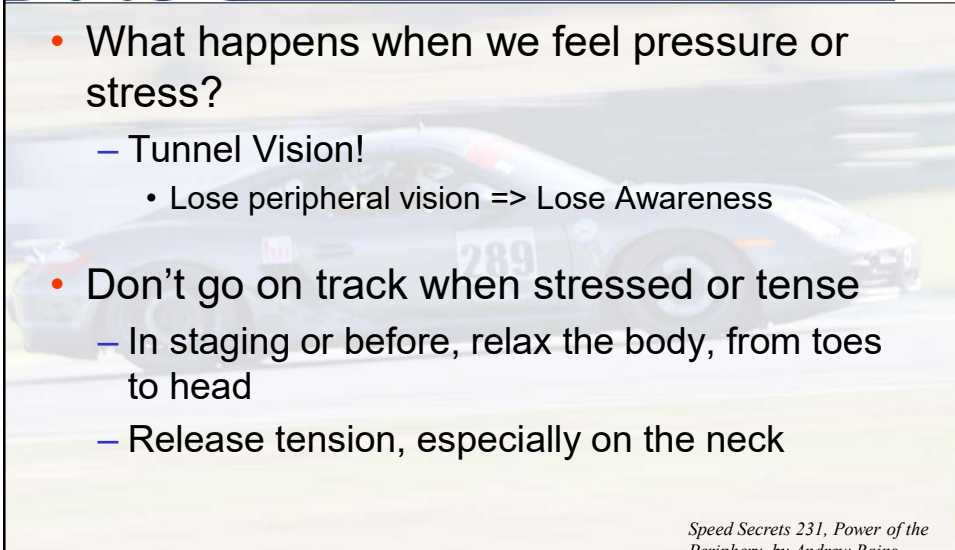
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NNJR Pressure Situations



- What happens when we feel pressure or stress?
 - Tunnel Vision!
 - Lose peripheral vision => Lose Awareness
- Don't go on track when stressed or tense
 - In staging or before, relax the body, from toes to head
 - Release tension, especially on the neck




Speed Secrets 231, Power of the Periphery, by Andrew Rains

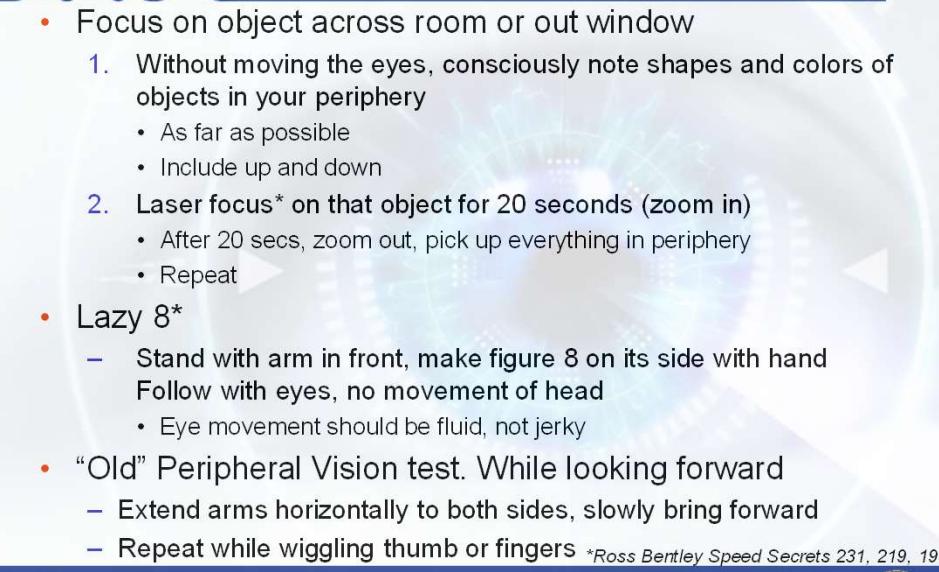
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NNJR Vision Exercises




- Focus on object across room or out window
 1. Without moving the eyes, consciously note shapes and colors of objects in your periphery
 - As far as possible
 - Include up and down
 2. Laser focus* on that object for 20 seconds (zoom in)
 - After 20 secs, zoom out, pick up everything in periphery
 - Repeat
- Lazy 8*
 - Stand with arm in front, make figure 8 on its side with hand
Follow with eyes, no movement of head
 - Eye movement should be fluid, not jerky
- “Old” Peripheral Vision test. While looking forward
 - Extend arms horizontally to both sides, slowly bring forward
 - Repeat while wiggling thumb or fingers *Ross Bentley Speed Secrets 231, 219, 192




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NNJR RP's: One Example




- How do we “look around” blind corners?
 - Where do we focus?
- Develop “mental vision”*
 - A picture in your mind of the entire corner
 - Start with detailed RP's of that corner (video can help)
 - Next: visualize the full corner including exactly how you want to drive it

**Ross Bentley Speed Secrets 212*


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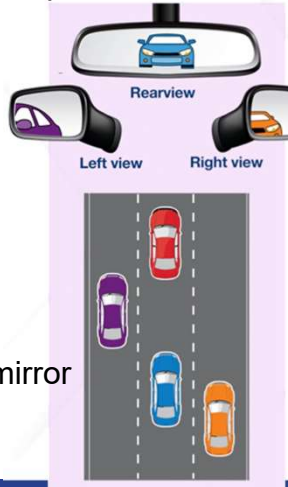
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NNJR Car Adjustments

- **Start in correct seating position!**
 - Height tradeoff: up helps vision, down helps kinesthetics
- **MIRRORS**
- **Rearview Mirror**
 - Adjust to see entire rear window
- **Left Mirror**
 - Rest head against driver's window
 - Adjust to barely see left rear fender
- **Right Mirror**
 - Lean right so head is under rearview mirror
 - Adjust to barely see right rear fender





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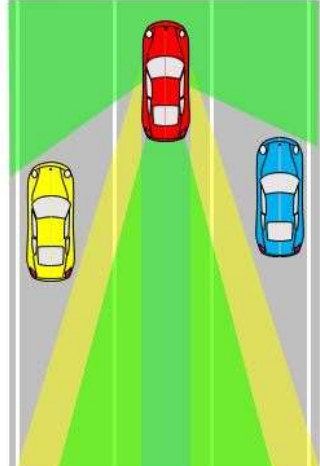
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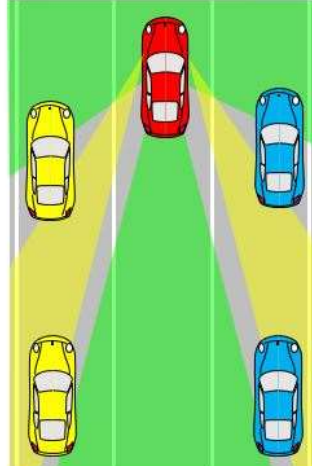
NNJR Proper Mirror Adjustment

Common



Better




G. Plazer, "The Geometry of Automotive Rearview Mirrors—Why Blind Zones Exist and Strategies to Overcome Them," SAE Tech. Paper 950601 (1995).

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NNJR When to Look:




- At Flagstations?
- At Mirrors?

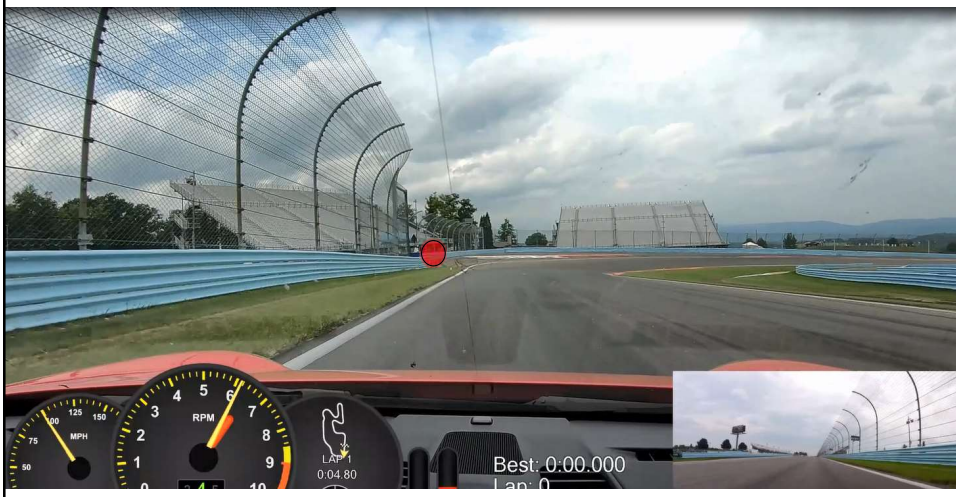


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NNJR Flag Station 1 



Best: 0:00.000
Lap: 0

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NNJR Flag Station 1 

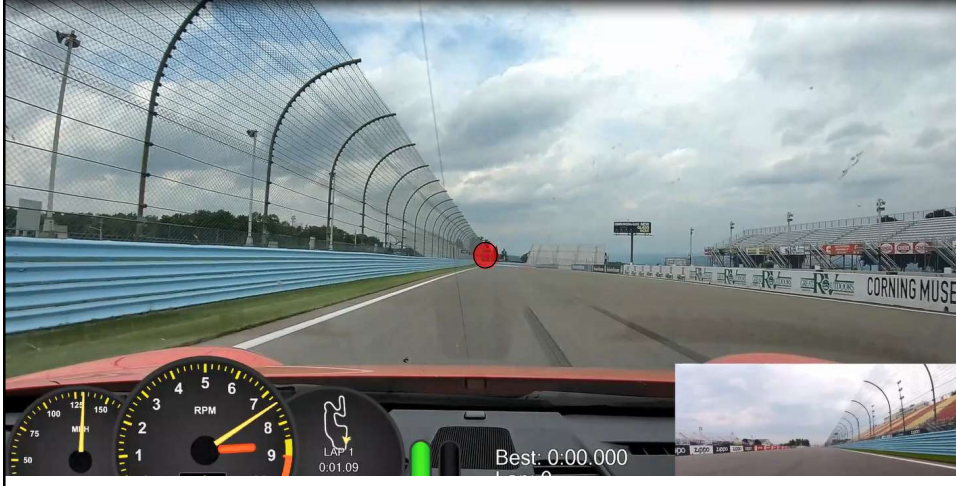



Best: 0:00.000
Lap: 0

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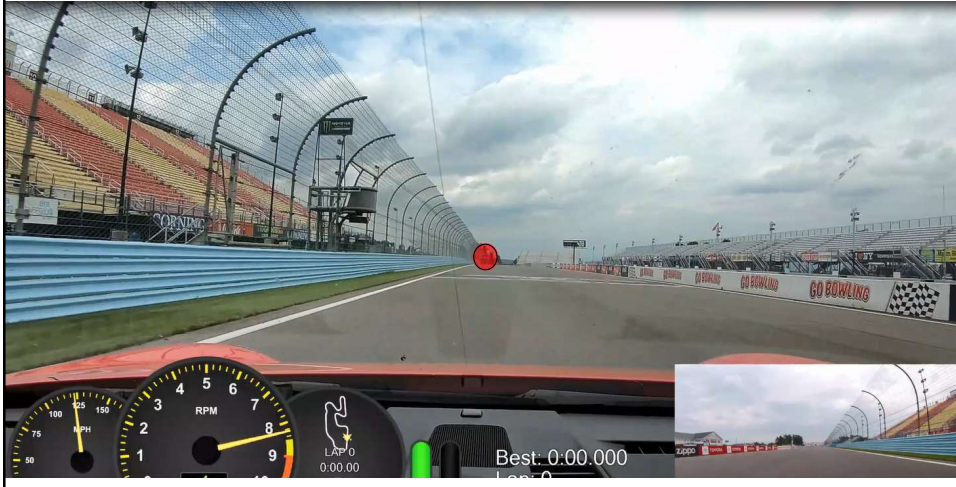
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NNJR Flag Station 1 





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NNJR Flag Station 2 





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NNJR Flag Station 2 



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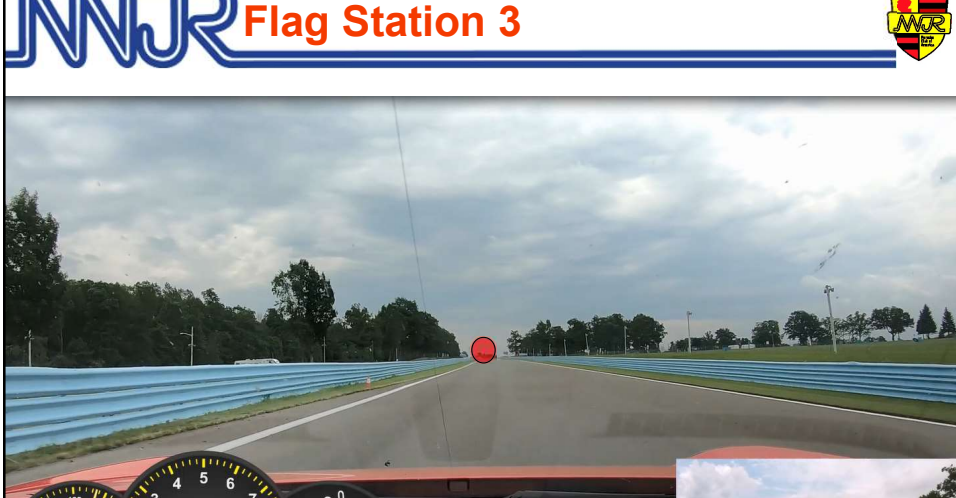
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NNJR Flag Station 3 



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NNJR Flag Station 3

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NNJR Flag Stations

- Critical for your safety and others (*duh*)
- **No excuse** for missing any flag
 - Why do drivers miss flags?
- Inexperienced drivers
 - Not enough scanning (“glance”)
 - Incomplete “mental picture”
- Experienced drivers
 - Tunnel vision: e.g. chasing a car or a laptime
 - Incomplete “mental picture”
 - “In a rut” and forget the basics

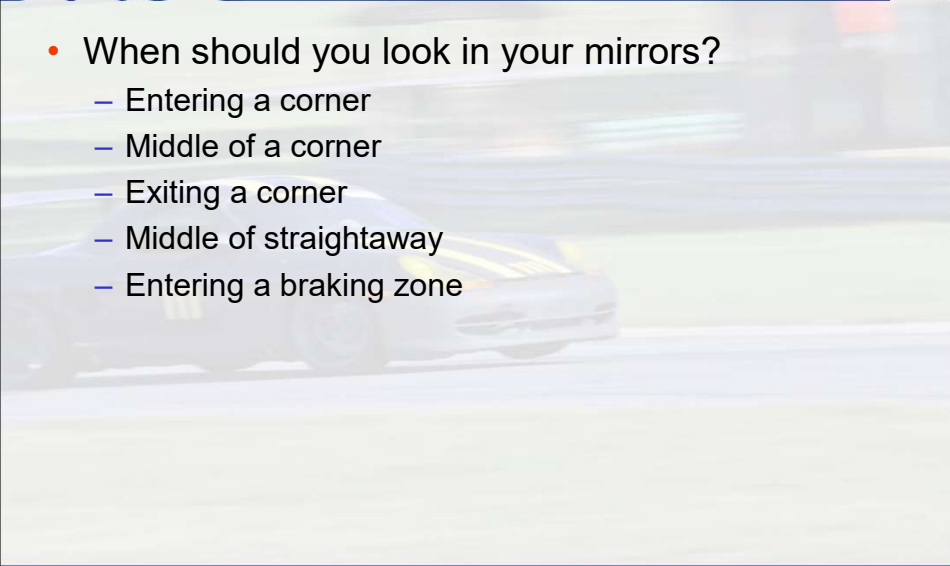
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NNJR Poll




- When should you look in your mirrors?
 - Entering a corner
 - Middle of a corner
 - Exiting a corner
 - Middle of straightaway
 - Entering a braking zone



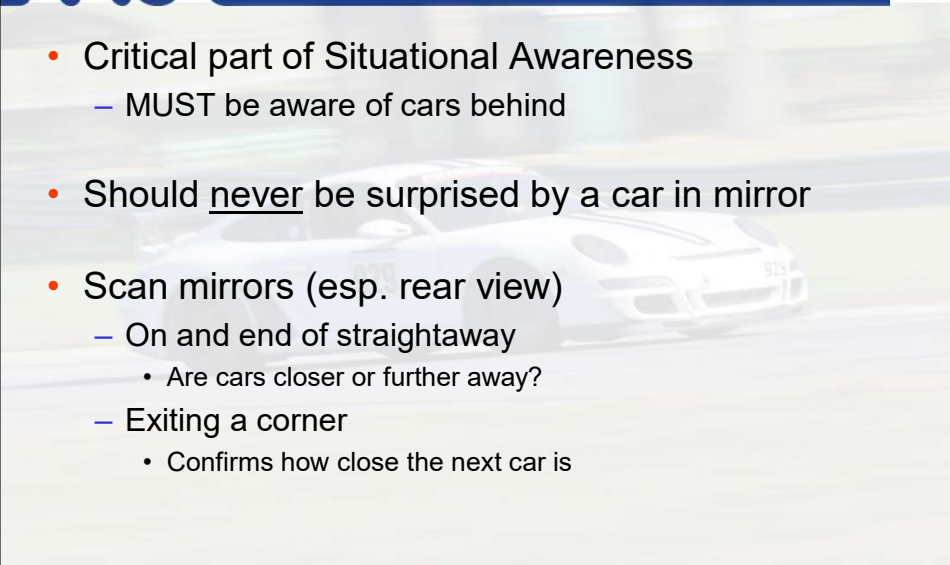
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NNJR Mirrors



- Critical part of Situational Awareness
 - MUST be aware of cars behind
- Should never be surprised by a car in mirror
- Scan mirrors (esp. rear view)
 - On and end of straightaway
 - Are cars closer or further away?
 - Exiting a corner
 - Confirms how close the next car is



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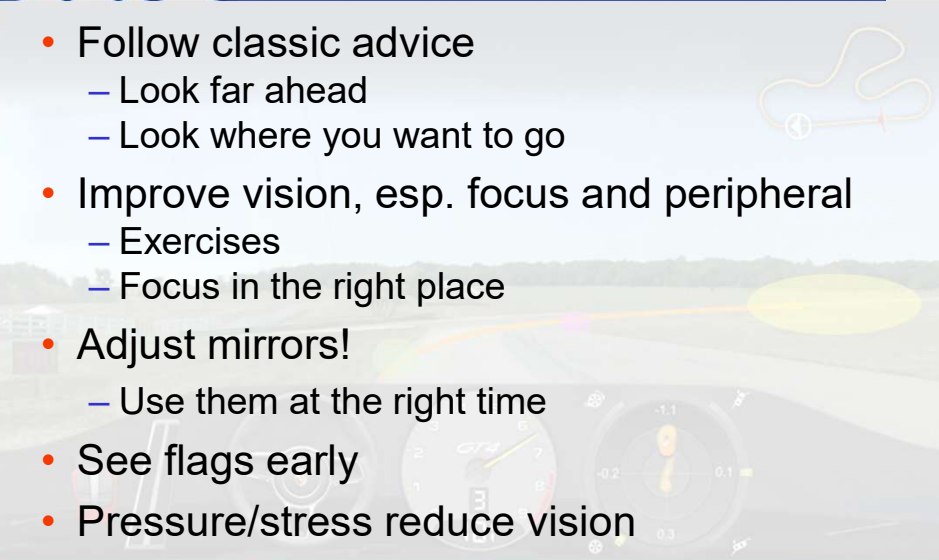



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NNJR Summary



- Follow classic advice
 - Look far ahead
 - Look where you want to go
- Improve vision, esp. focus and peripheral
 - Exercises
 - Focus in the right place
- Adjust mirrors!
 - Use them at the right time
- See flags early
- Pressure/stress reduce vision



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NNJR Q&A



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