



Dedicated to innovation in aerospace

**Startle & Surprise Training Implementation  
PACDEFF 2018**

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## Back to the Future



- Research on S&S was presented at PACDEFF 2016.
- This year: focus on the actual implementation, at KLM and other Dutch airlines.
- First: a short recap of the 2016 presentation.



## Do we need this?



- Can we blame these crews for not acting brilliantly?  
No, we did not prepare them well enough in dealing with these situations.
- EASA Research question: How can we better prepare pilots in dealing with any unexpected situation?



## S&S Behavioural reactions



- In comparison:  
Freeze is mainly seen with passengers;  
Fight/Flight mainly with trained professionals.
- Fight/Flight often results in frantic immediate action when it is not required:  
No plan, no coordination, no communication and no evaluation.



## Aviation wisdom

### Remember these...?

- Enjoy the failure
- Look at the big picture
- Sit on your hands

Etc...

- All good tips! However, this is not specific enough for training.
- This means the chance of transfer of training to the operation is minimal.



## Three step approach

Reset

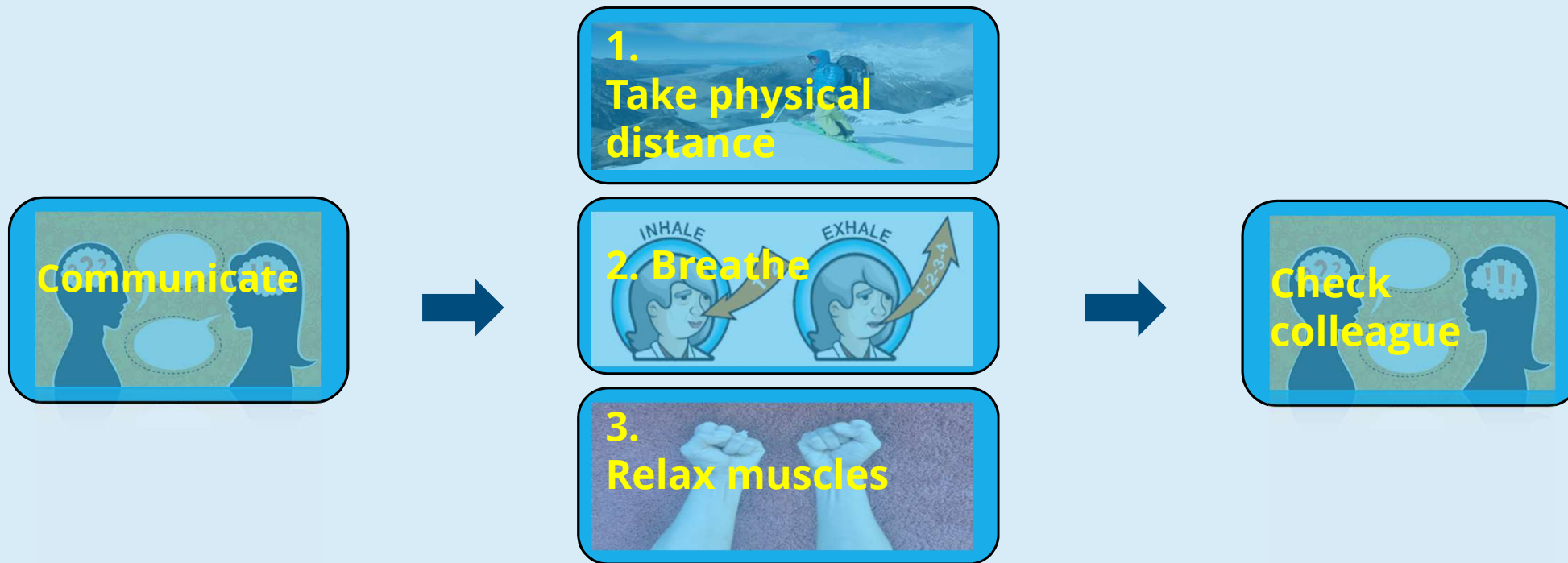
Observe

Confirm

- Lesson Learned from implementation: crews like Reset better than Relax.
- Focus during training mainly on practising and applying the Reset technique.



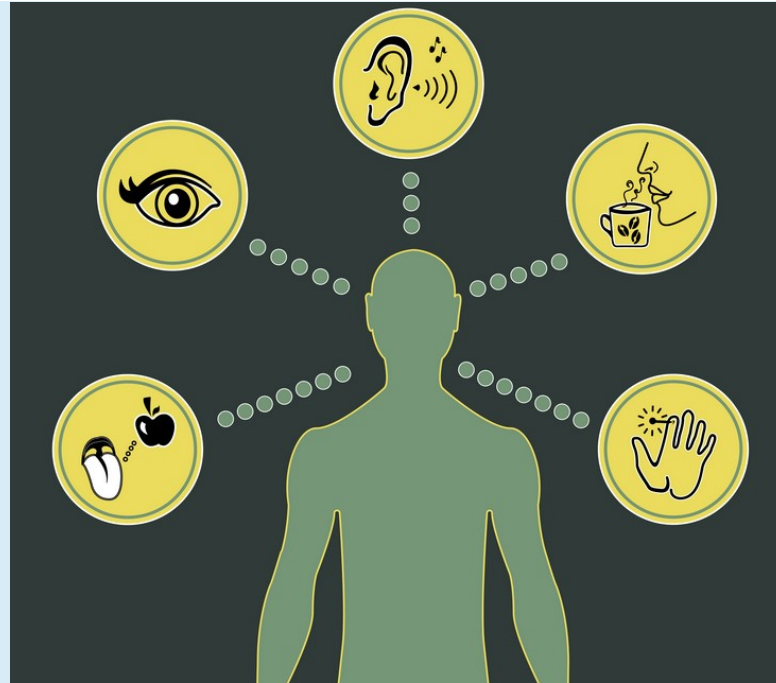
# Relax/Reset



- Step1: **Reset**: manage the initial Fight/Flight responses:
  - A) Communicate the use of the technique;
  - B) Manage personal responses;
  - C) Check the state of your colleague.



## Observe + Confirm



- Step 2: **O**bserve; building up SA by gathering observations: What do we see, hear, smell, feel...
- Step 3: **C**onfirm; the actual decision making, possibly using existing models: DESIDE, FORDEC





# Training research evaluation



44 Flight crew members  
- Including 22 Instructors



Short-haul: B737-NG



Long-haul: B747-400

- Pilots liked the training (8/10)
- Only classroom training is not enough; practice in operational environment!
- Not taking action immediately requires practice; unlearning automated behaviour.
- Managing expectations; what is this training about and what not.
- Using '**R**eset' increases the available time to gather observations; '**O**bserve'.
- Pilots into yoga, mindfulness & martial arts recognise the **R**eset techniques.



**The research has finished...**

**And now...what?**

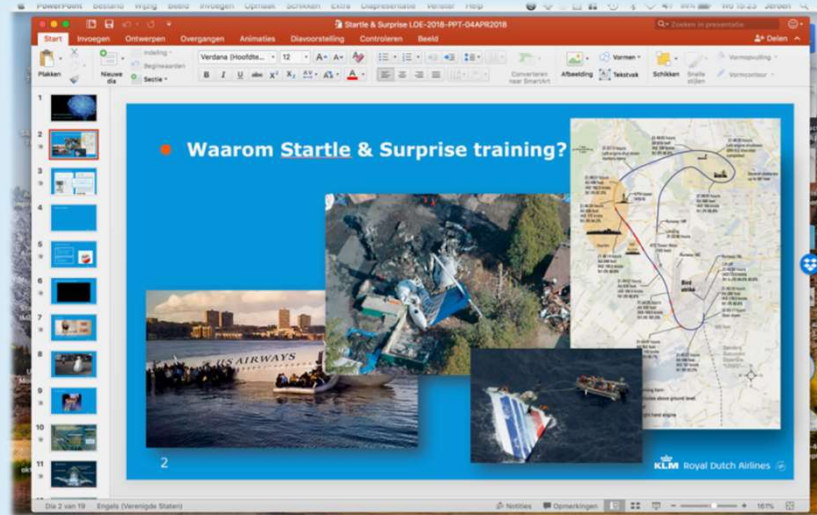
- Enough scientific and practical evidence from many domains that techniques such as **R**eset improve performance in demanding situations.
- KLM decided to implement the developed training into Recurrent training.

# Different levels of implementation



- KLM implemented the full training:
  - homework assignment (asking for personal experiences).
  - 1 hour classroom training, followed immediately by:
  - 1.5 hours of simulator training.
  - One instructor on two pilots.
- Other airlines chose for leaner levels of implementation.
- Lesson Learned; only a briefing by untrained instructors is not recommended!

# Content & Training Media



- Doing something new and innovative requires a good story to back up your ideas.
  - An iBook was developed to explain the Why behind this training.
  - Trainee experiences were used throughout the training.
  - Personal S&S responses are the trigger to use the **R**eset technique.
  - After try-outs, instructors were asked for feedback.
  - A VR-exercise was used to bridge the gap between classroom and simulator



## Instruction (techniques)

Training!  
Not testing



Manage  
expectations

It's not about  
the scenarios...

Unlearning/  
Direct coaching

- The simulator was only used to train the **R**eset and **O**bserve techniques. Not to startle or surprise pilots; not to resolve abnormal situations.
- Six different scenarios were used



## Instructors are key

Without belief  
no success...

Get senior  
instructors  
enthusiastic



Ask actively for  
feedback

RESET is a tool,  
not SOP

- Convincing management is important, but for success instructors are key! First, senior instructors have to believe in added value, involve them early.
- **Reset** is not pushed as a SOP, it is sold as a tool that can help to improve performance in unexpected, demanding situations.



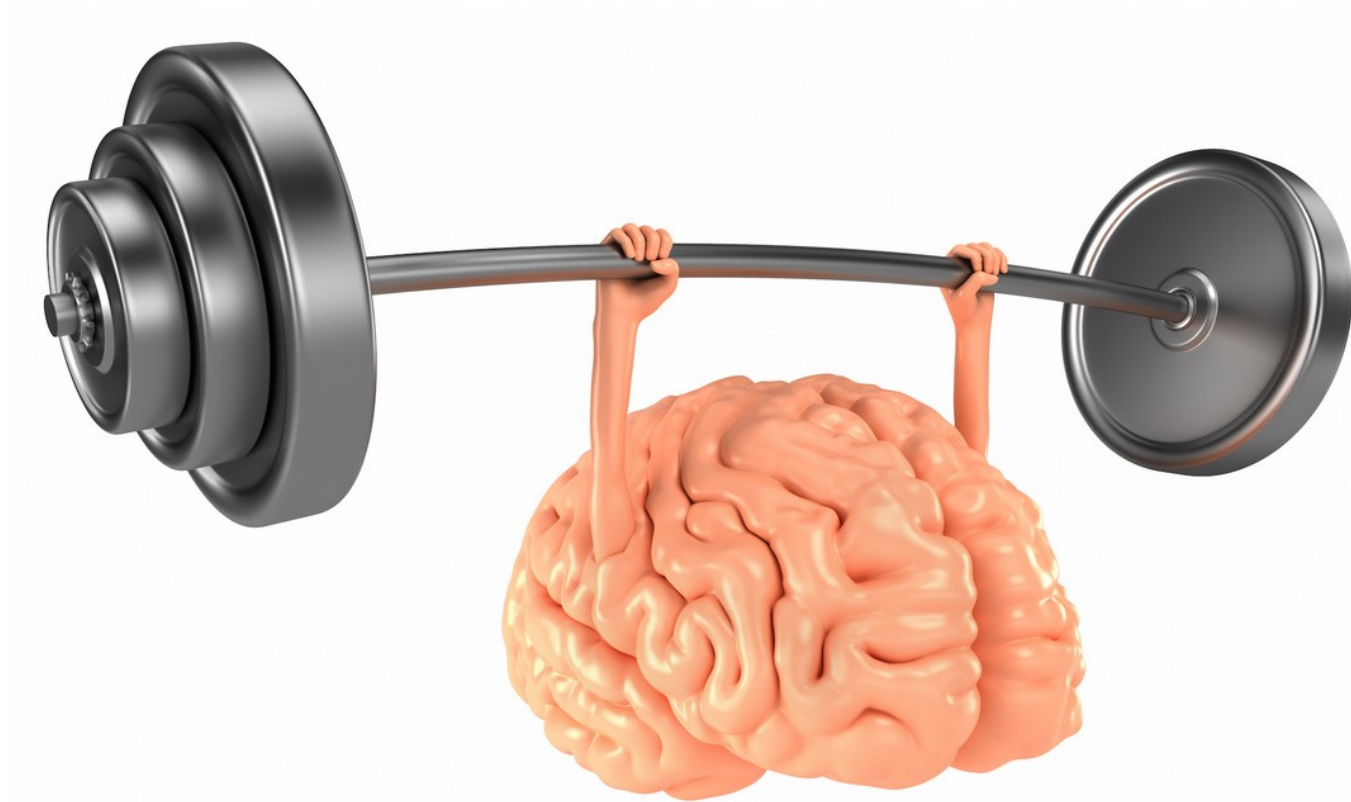
**All pilots have received initial Startle & Surprise training**

**And now...what?**

- S&S will be addressed in recurrent training every six months.
- S&S training will be a standard topic during instructor training.
- S&S will be addressed during every Type Conversion training.



It is not a trick, it is TRAINING!



- Mental training, just as physical training, is about deliberate practice:
  - Planned
  - Coached/Feedback
  - Repeated



# The most important result...



...the crew of this 737 stating that the **R**eset technique helped them to successfully deal with a bird strike and the resulting failures immediately after take off.



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# Fully engaged

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