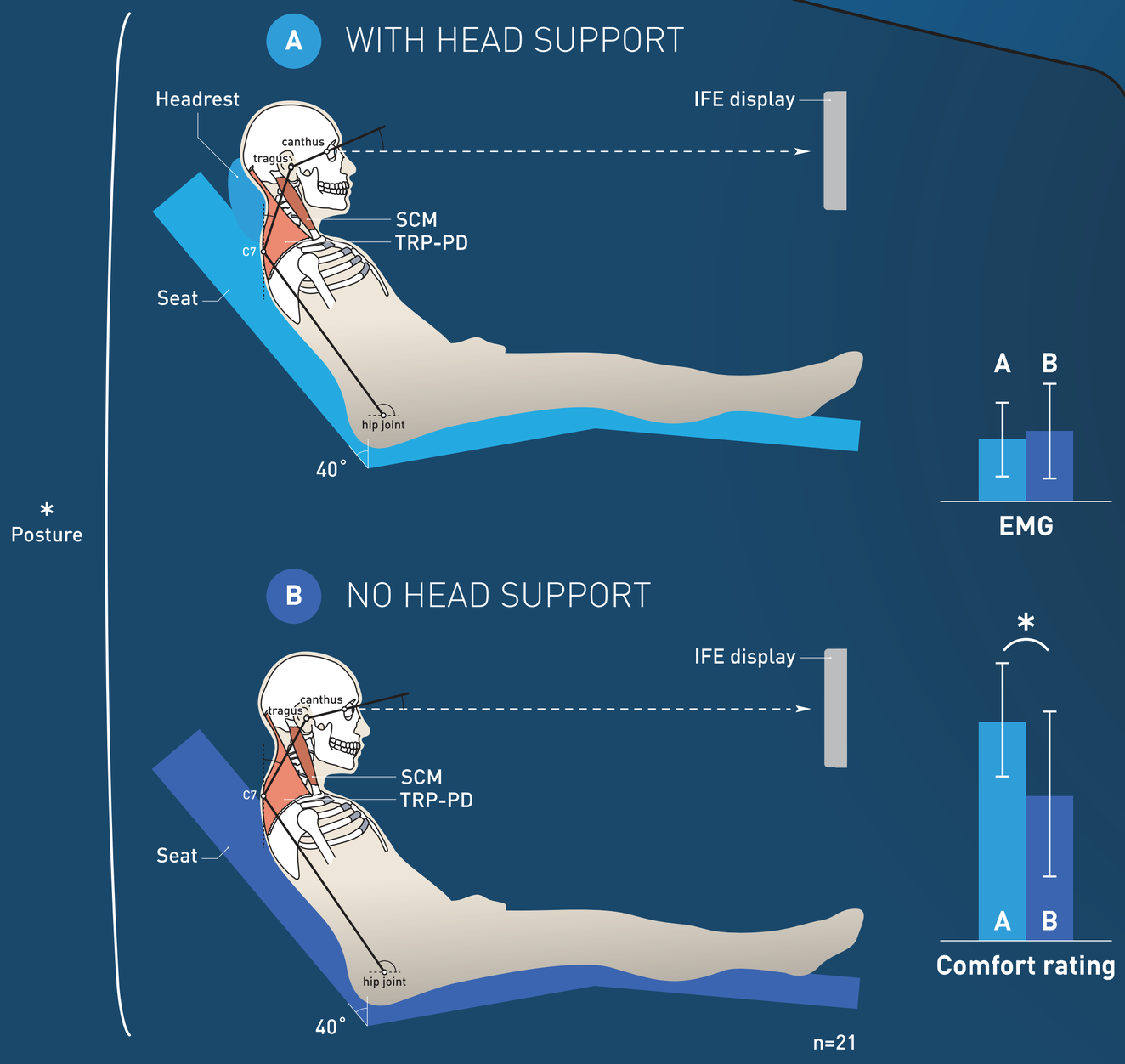
Flex and relax

an exploration on headrest design

CONTEXT

People prefer to watch in flight entertainment (IFE) in a slouched posture. In current premium aircraft seats passengers lack head/neck support, as they flex their head forward to have a perpendicular view on the in flight entertainment (IFE) screen. Prolonged contraction of the neck and/or eye muscles to sustain view on the IFE screen may fatigue the muscles, leading to pains and discomfort.



* Posture

SCIENTIFIC STUDY

This scientific study found that **head support** (A) **improves** the **'expected comfort'** of passengers and **may lower muscle tension in the neck** as shown in an AnyBody™ computer simulation. This was however not validated in a real life study, as **no sig.dif. in muscle activity was found by EMG**. The **posture was** however **sig.dif.**; without support the head was bend more forward (B), bringing the gravitational point of the head above the spine, meaning less muscle activity was needed to sustain statical position of the head. This could explain the lack of a significant difference in muscle tension and **may indicate that humans search for a neutral posture** with minimal strain on the musculoskeletal system. Further research on the long-term (dis)comfort and fatigue is advised. Nevertheless, a proposed design of a forward tilting headrest based on a simple friction hinge may be an interesting solution to improve passenger comfort when watching IFE.

This study has been invited and submitted to **Applied Ergonomics**.

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Flex and relax: An exploration on headrest design for sleeping and watching IFE in premium aircraft seats

February 9th, 2018

Integrated Product Design

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