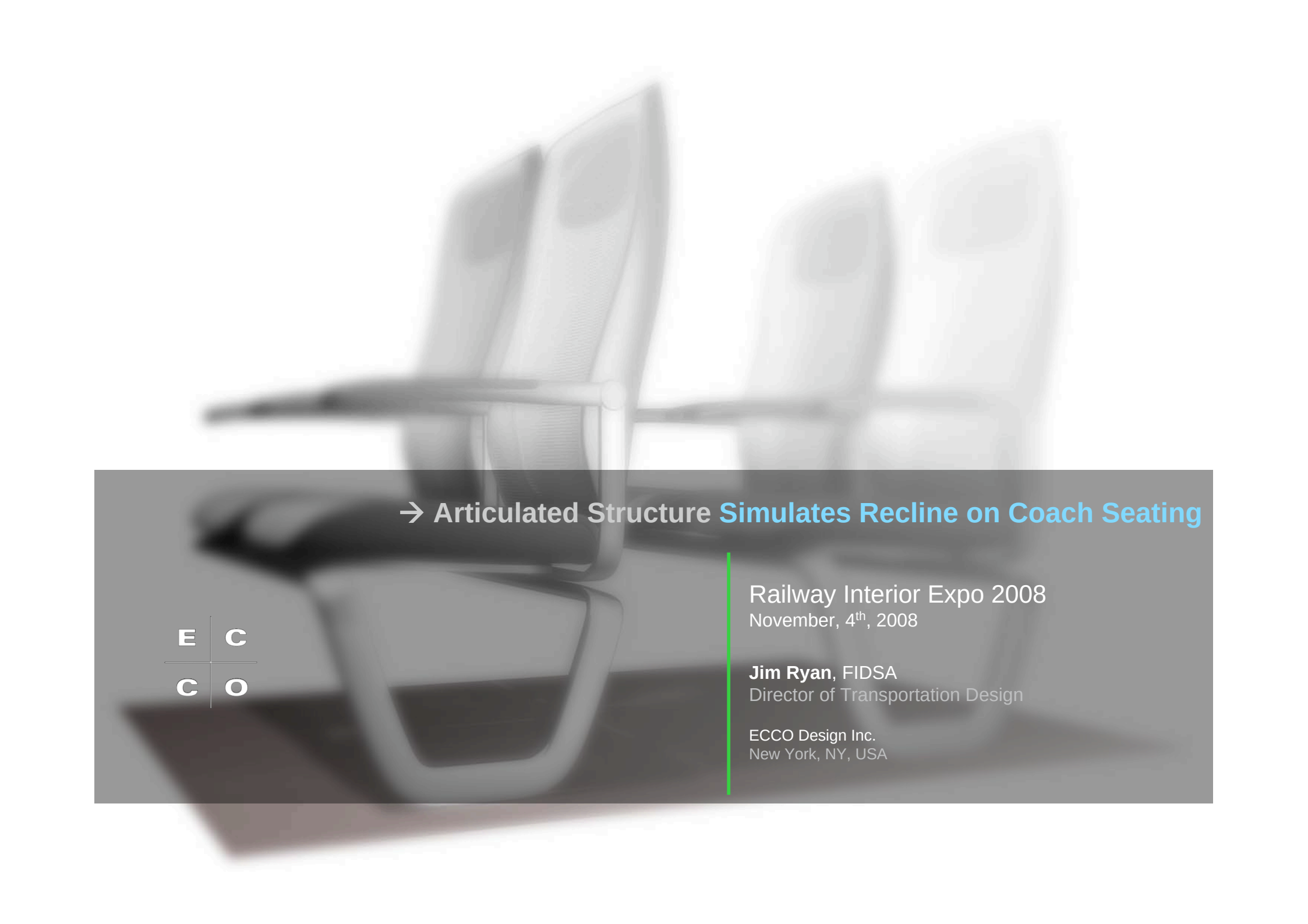

→ Articulated Structure Simulates Recline on Coach Seating

Railway Interior Expo 2008
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Jim Ryan, FIDSA
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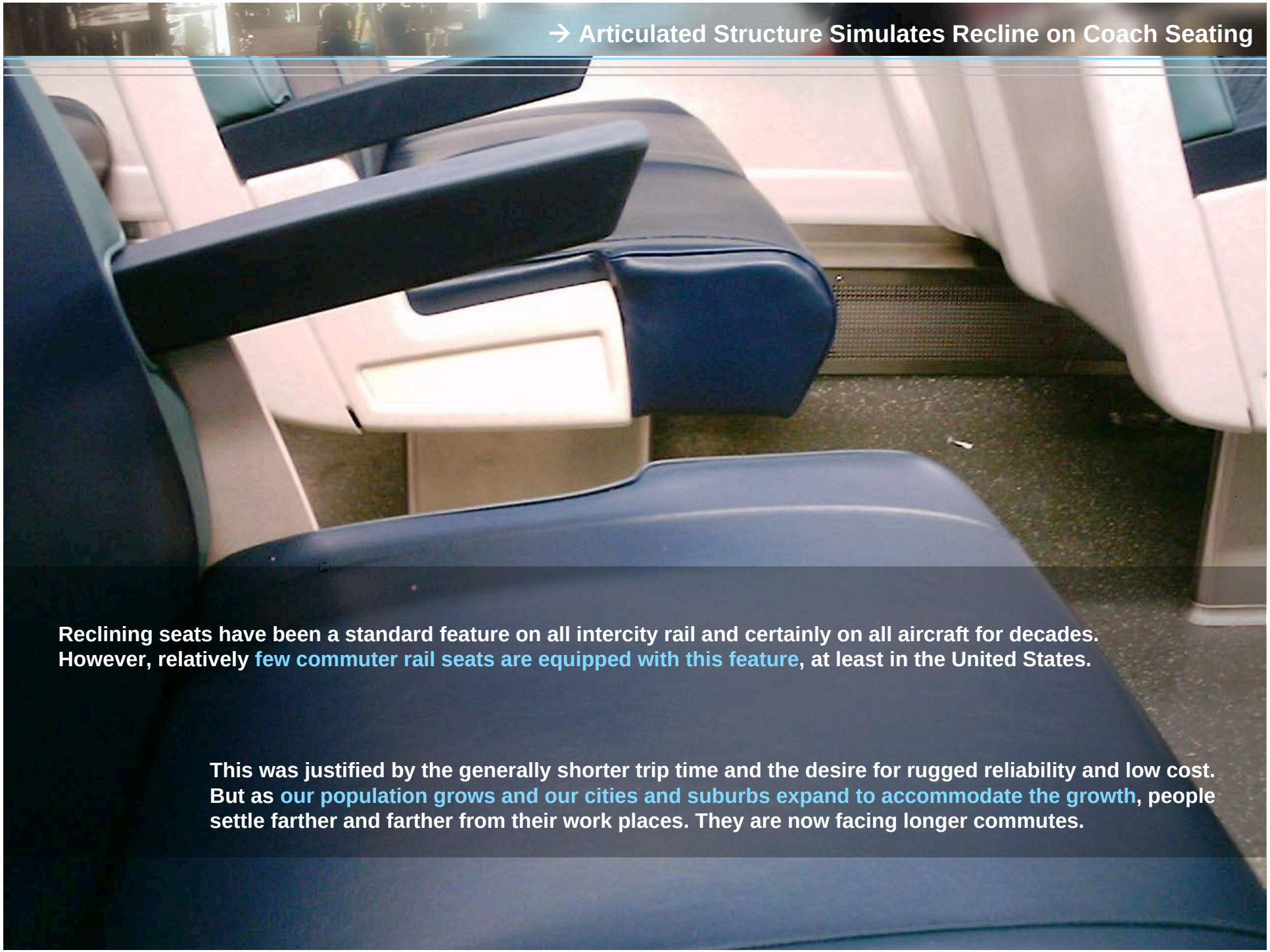

Reclining seats have been a standard feature on all intercity rail and certainly on all aircraft for decades. However, relatively few commuter rail seats are equipped with this feature, at least in the United States.

This was justified by the generally shorter trip time and the desire for rugged reliability and low cost. But as our population grows and our cities and suburbs expand to accommodate the growth, people settle farther and farther from their work places. They are now facing longer commutes.

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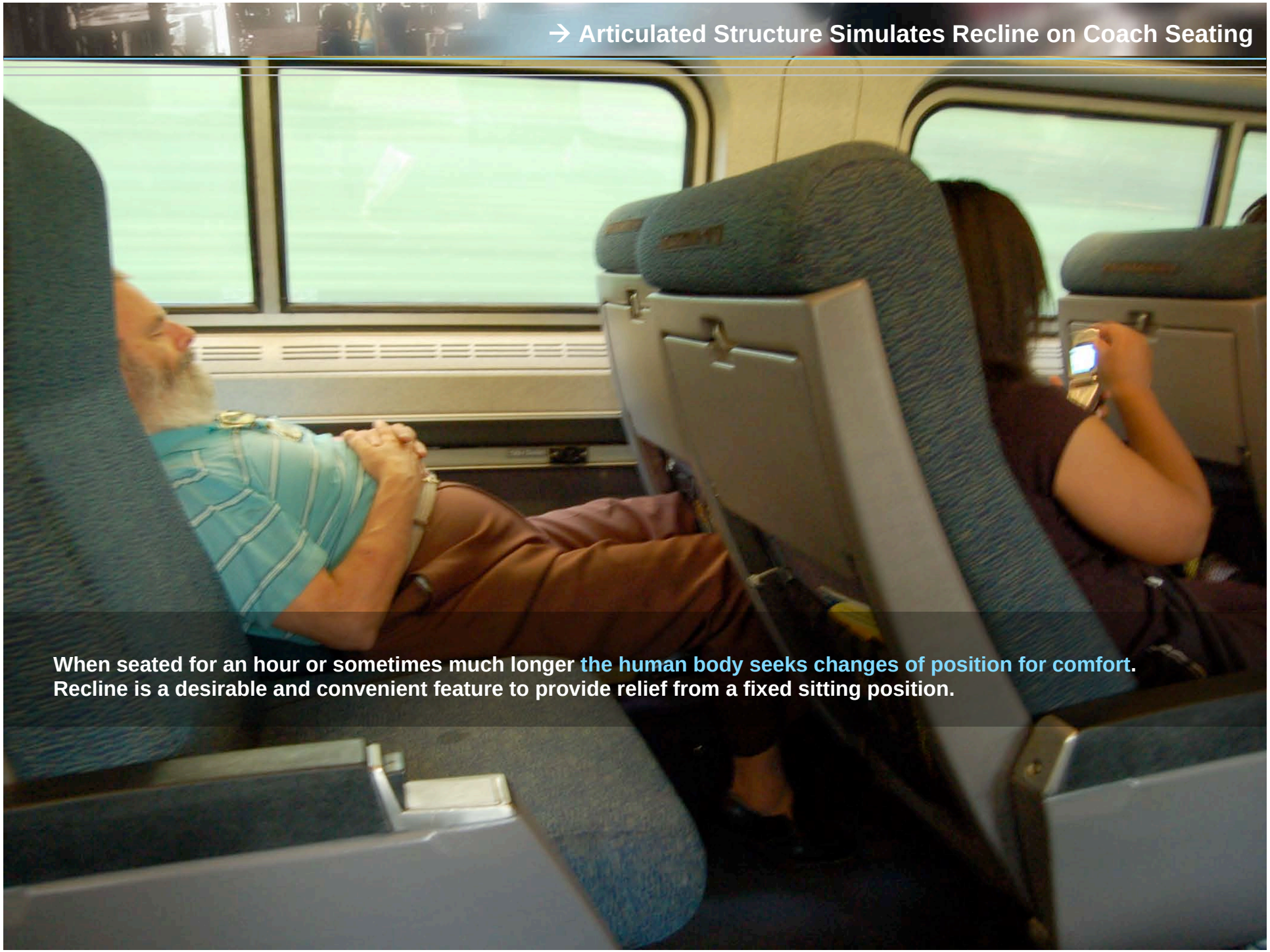

When seated for an hour or sometimes much longer the human body seeks changes of position for comfort. Recline is a desirable and convenient feature to provide relief from a fixed sitting position.

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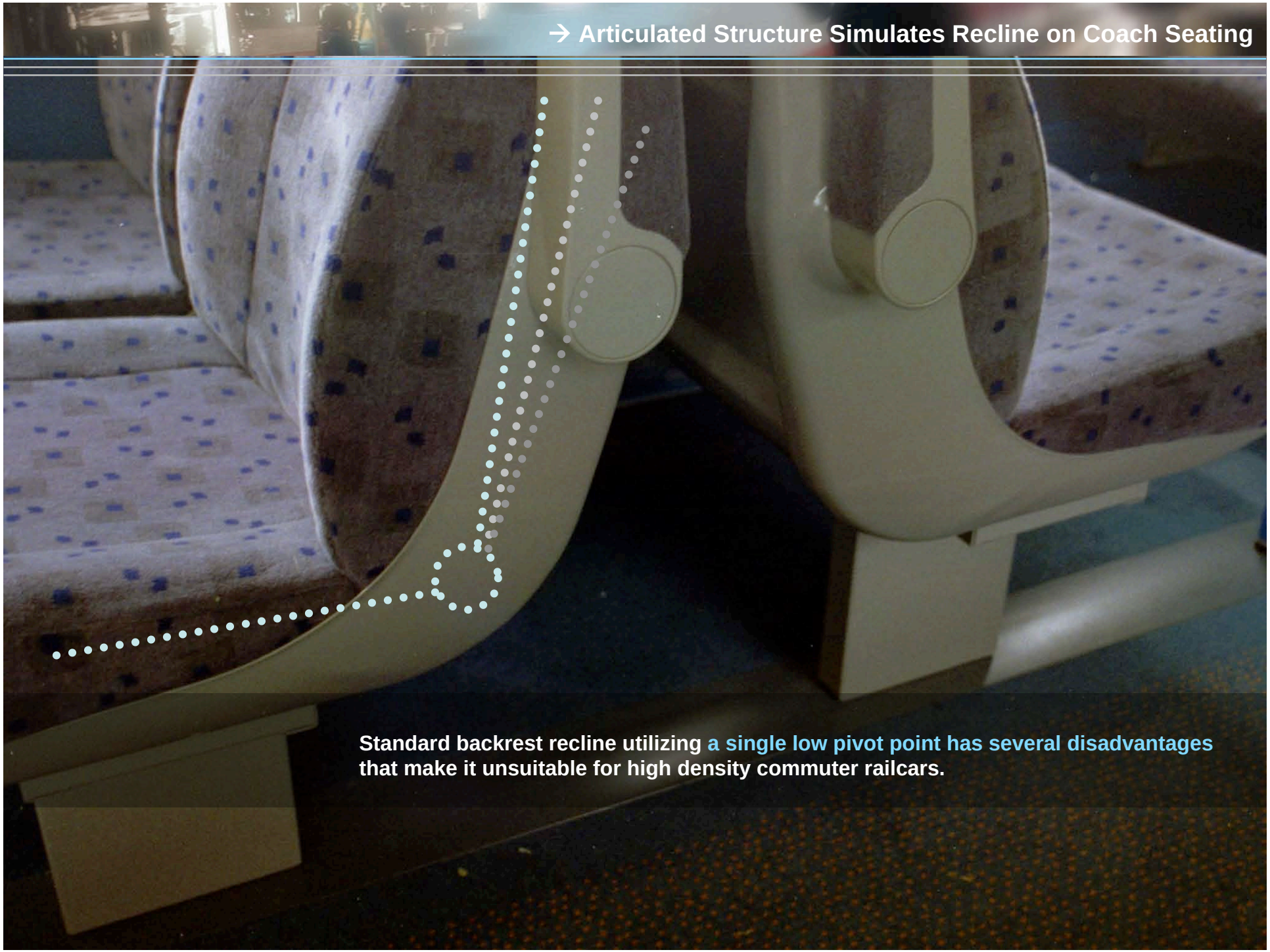

Standard backrest recline utilizing a single low pivot point has several disadvantages that make it unsuitable for high density commuter railcars.

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First, the control mechanisms such as hydro locks or gas springs are somewhat costly to provide and maintain.

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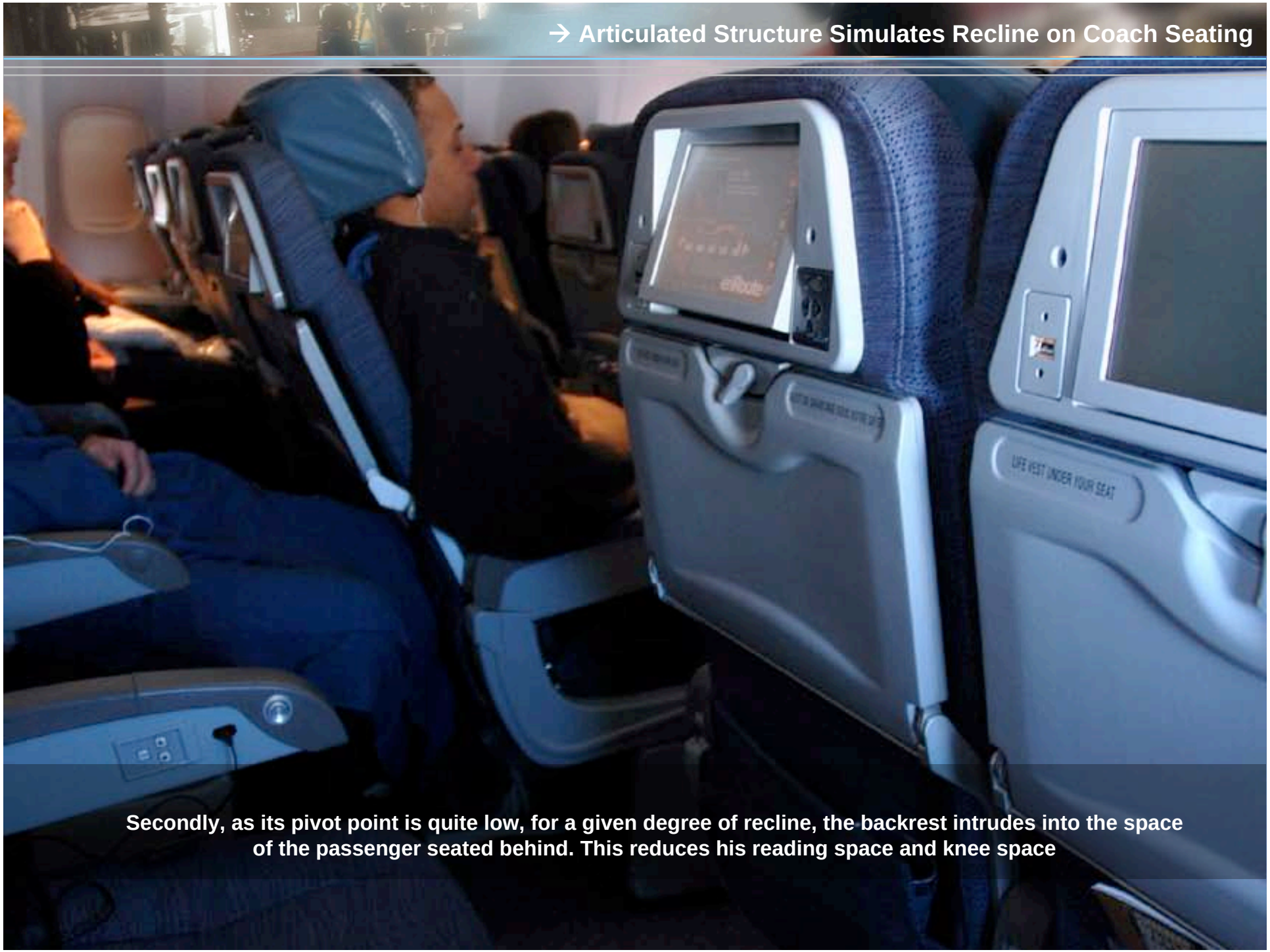
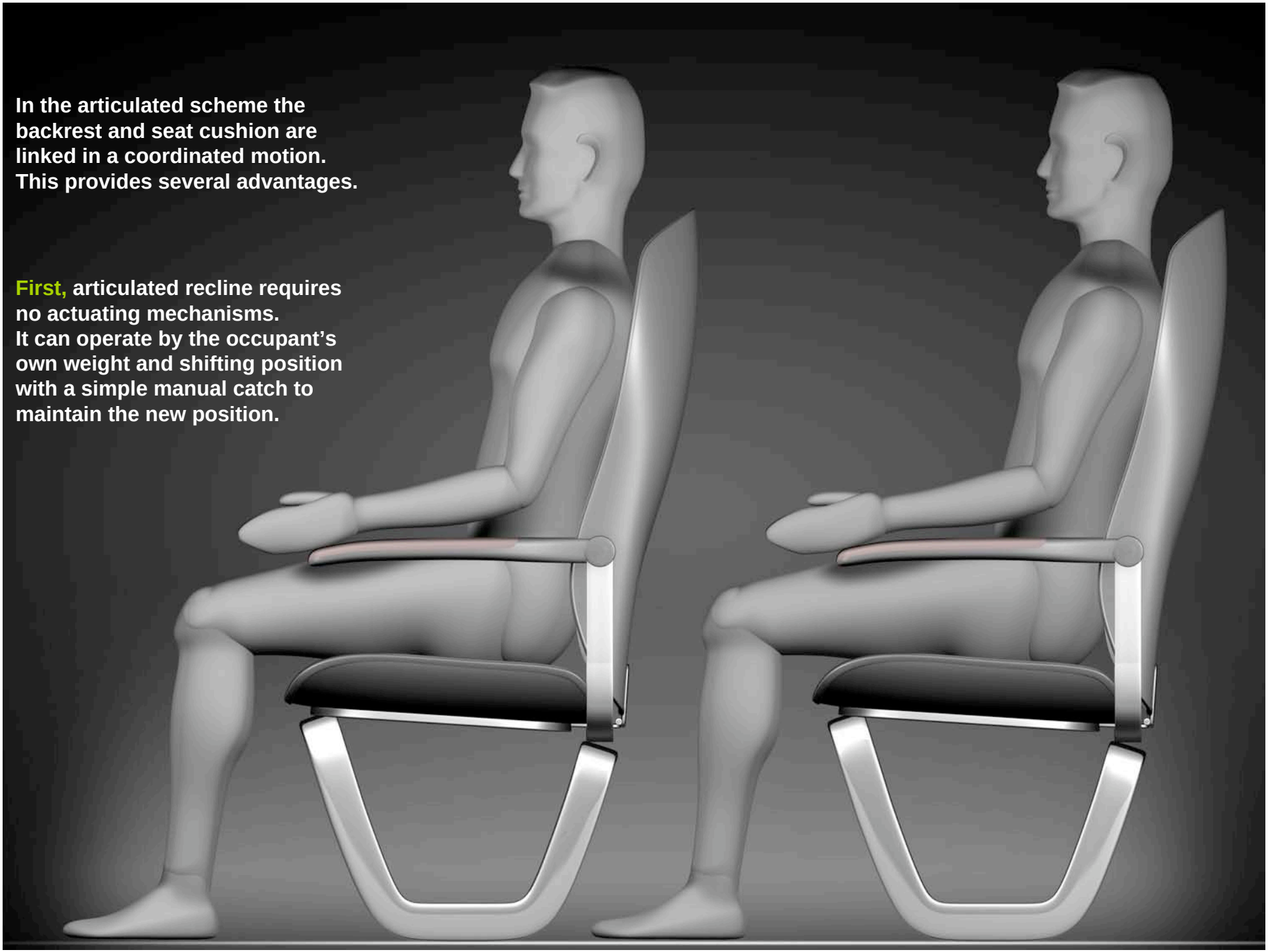


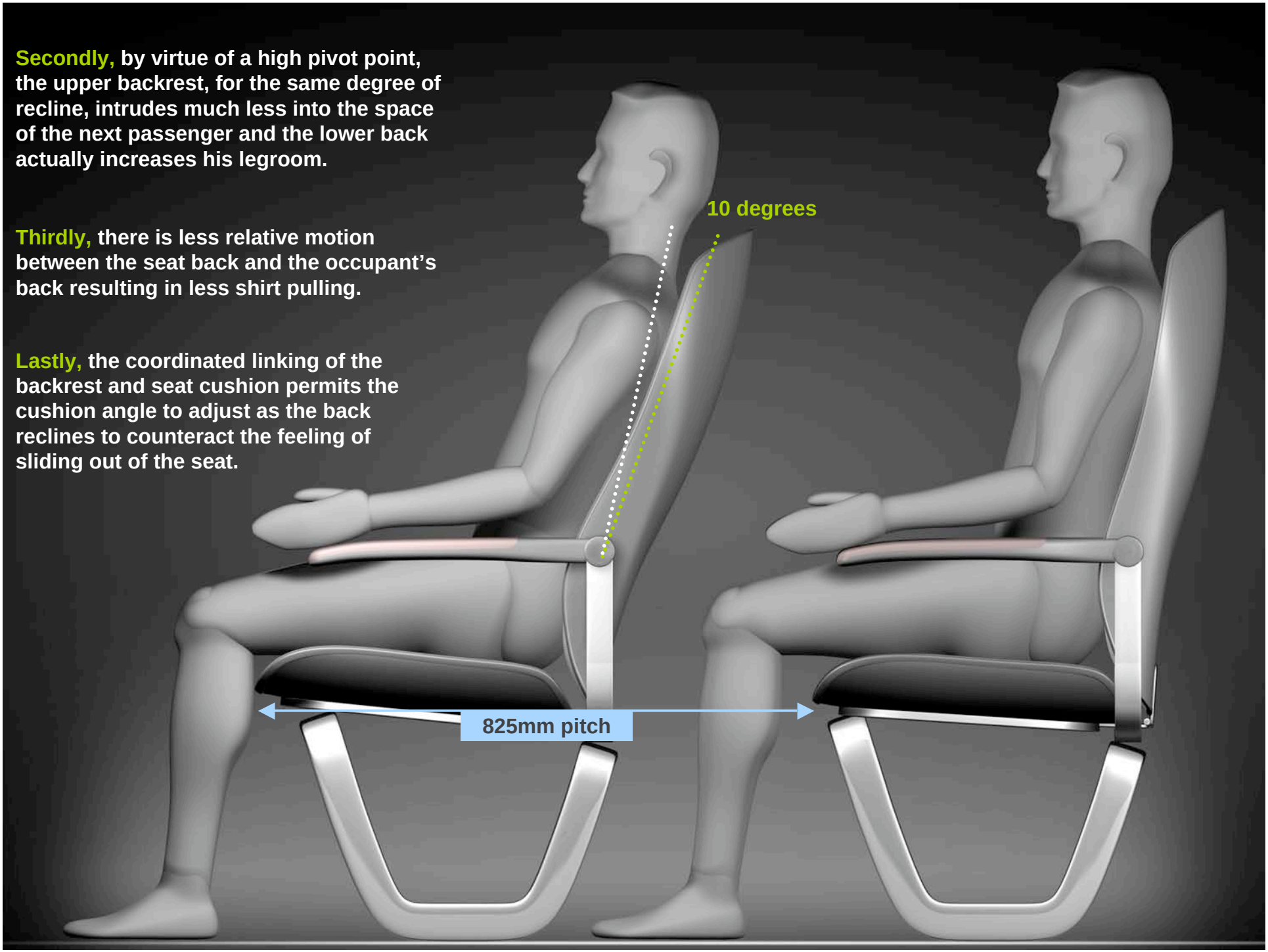
Secondly, as its pivot point is quite low, for a given degree of recline, the backrest intrudes into the space of the passenger seated behind. This reduces his reading space and knee space

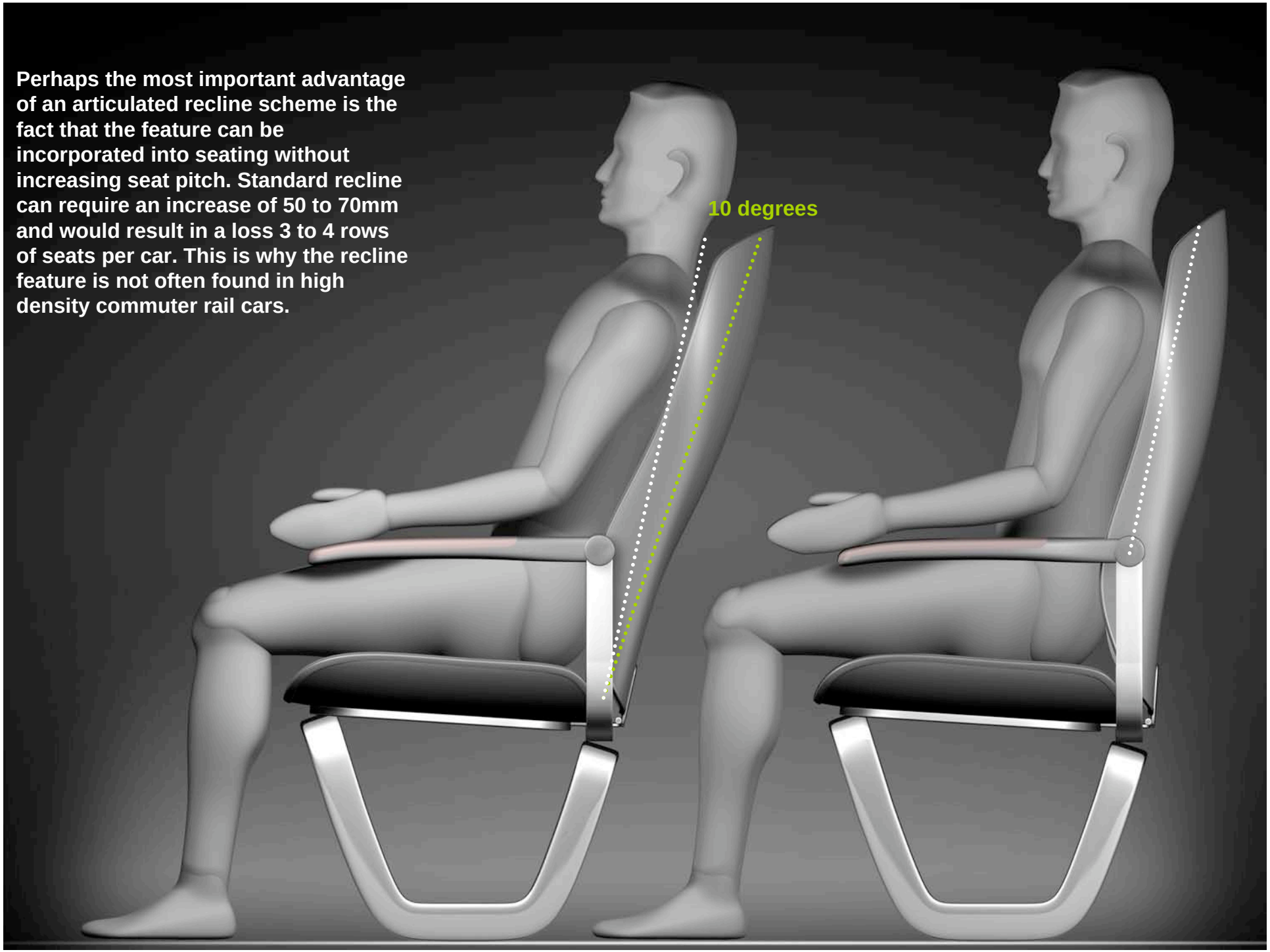
→ Articulated Structure Simulates Recline on Coach Seating

Thirdly, the relative motion of the seat back against the occupant's back tends to pull his shirt.

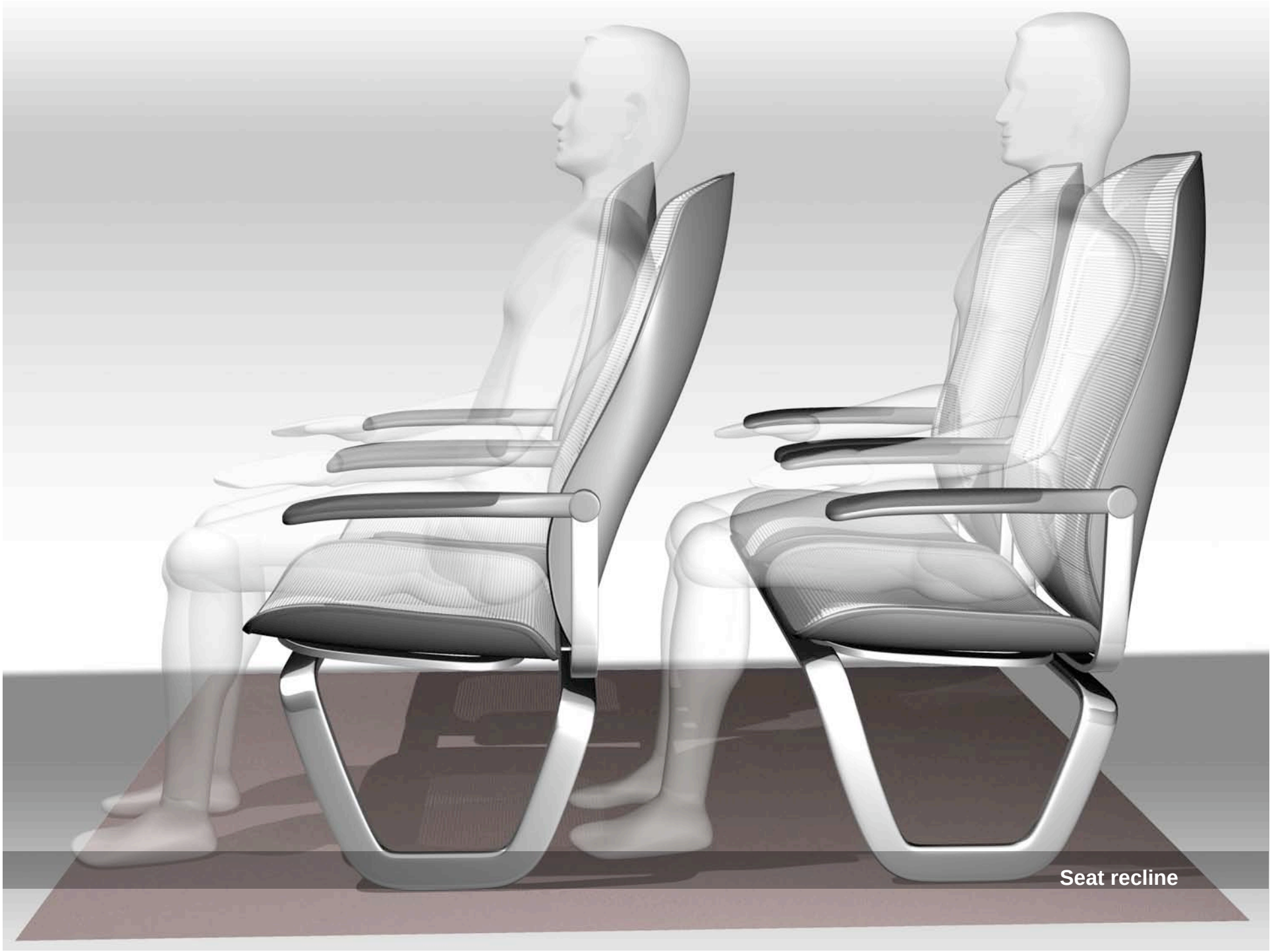
Lastly, the backrest moves but the seat cushion doesn't. As the backrest to seat angle opens up there is a tendency to feel that one is slipping down and out of the seat.


In the articulated scheme the backrest and seat cushion are linked in a coordinated motion. This provides several advantages.
First, articulated recline requires no actuating mechanisms. It can operate by the occupant's own weight and shifting position with a simple manual catch to maintain the new position.


Secondly, by virtue of a high pivot point, the upper backrest, for the same degree of recline, intrudes much less into the space of the next passenger and the lower back actually increases his legroom.
Thirdly, there is less relative motion between the seat back and the occupant's back resulting in less shirt pulling.
Lastly, the coordinated linking of the backrest and seat cushion permits the cushion angle to adjust as the back reclines to counteract the feeling of sliding out of the seat.
10 degrees
825mm pitch


Perhaps the most important advantage of an articulated recline scheme is the fact that the feature can be incorporated into seating without increasing seat pitch. Standard recline can require an increase of 50 to 70mm and would result in a loss 3 to 4 rows of seats per car. This is why the recline feature is not often found in high density commuter rail cars.
10 degrees

Group seating


Seat recline


Seat Panel Offered in Alternative Material such as Fabric or Mesh
Mesh with Carrier
Structural Frame
Back Shroud

Thank You

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