The Shifting Mind: Six Decades of Cognitive Evolution as Eastern Societies Adopt Western Lifestyles

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Abstract

Modernisation has created a profound "evolutionary mismatch" between biologically ingrained neural adaptations and contemporary lifestyles, driving a global brain health crisis. This PRISMA-guided meta-analysis[1], synthesising studies across six decades, reveals that ultra-processed diets (>60% daily calories) accelerate cognitive decline by 26% (HR=1.26)[2], while sedentary lifestyles elevate vascular dementia risk by 40% (OR=1.4)[3]. Mechanistically, trans fats and fructose suppress hippocampal brain-derived neurotrophic factor (BDNF) by 18% ($p<0.01$)[4,5], impairing neurogenesis. Adolescents face compounding risks: >6 hours/day of screen time correlates with a 34% increase in depression (RR=1.34)[7] and metabolic dysfunction, creating a cyclical decline. However, integrative interventions demonstrate resilience: Mediterranean-DASH diets paired with aerobic exercise stimulate 2% annual hippocampal growth[9], and urban green spaces lower stress biomarkers (cortisol ↓12%)[10]. Policy opportunities include sugar taxes to curb processed food consumption[11] and walkable city designs that align with ancestral movement patterns[12]. Yet, challenges persist: direct parallels to animal models remain limited by human cultural complexity[13], and socioeconomic disparities restrict access to interventions. For instance, marginalized communities face 3 times higher exposure to food deserts[14], exacerbating neuroinflammatory risks. Future efforts must prioritize equitable strategies—embedding ancestral dietary practices into public health frameworks and leveraging CRISPR-based tools to study epigenetic adaptations[15]. Success hinges on bridging evolutionary medicine[16] with urban policy, ensuring brain-healthy environments transcend privilege.

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