

# Multiple clocks within our bodies

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What?  
Stating whether someone looks either **younger or older than their chronological age** is not uncommon. A recent study has found that the **organs and systems in our bodies may have different biological ages**, and this can vary across individuals.<sup>1</sup>

Why?  
Different organs or tissues in the body may age at different rates. Identifying which organs or tissues are ageing the fastest would allow the targeting of interventions to those that will have the greatest impact on overall health. This study could provide insight not just on **aging rates**, but also suggest specific **gene- or pathway-targeted interventions**.<sup>1</sup>

<b>Multi-omics data were generated from:</b>	<b>403 features were measured in total and classified into different categories</b>	
Blood sample - <b>Genome, Metabolome</b>	<b>Cardiovascular</b> , e.g. blood lipids & blood pressure	<b>Immune</b> , e.g. B-cell receptor
Stool sample - <b>gut microbiome</b>	<b>Renal</b> , e.g. creatinine	<b>Physical fitness</b> , e.g. body composition measurement
Physical fitness examination - <b>phenome body composition</b>	<b>Liver</b> , e.g. bilirubin	<b>Gut</b> , e.g. gut microbiome
<b>Facial skin images</b> done via facial imaging	<b>Sex hormones</b> , e.g. progesterone	<b>Metabolomics</b> , e.g. vitamins, amino acids
	<b>Facial</b> , e.g. feature of skin	<b>Genomics</b> , e.g. whole genome sequencing

Who?  
This study used biomarkers which were mostly obtained through routine physical check-ups or blood sample tests, to **construct the biological ages of organs and body systems**. There is potential for this approach to be implemented **in clinical practice or health management for the elderly**, but also it could be scaled up to manage the **health of larger populations**.<sup>1</sup>

Author Comments  
This study highlights the potential value of measuring biological age and suggests measures of biological age may be a better predictor of mortality than chronological age. However, this study was based on cross-sectional data and identified **associations rather than causalities**. The aging process can be influenced by other factors such as the **interaction between genes and the environment**, therefore, studying these interactions may be beneficial in future research.

References:  
1) Nie, C., Li, Y., Li, R., Yan, Y., Zhang, D., Li, T., et al. Distinct biological ages of organs and systems identified from a multi-omics study. Cell Reports, 2022 March 8,38(10):110459.