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World leaders agree to draw up 'historic' treaty on plastic waste

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Plastics cause wide-ranging health issues from cancer to birth defects, landmark study finds

First analysis of plastics' hazards over life cycle - from extraction to disposal - also shows 'deep societal injustices' of impact



Analysis of the impact of plastics found disproportionate effects on coastal and ocean-dependent communities while production workers were at increased risk of a range of diseases. Photograph: Munir Uz Zaman/AFP/Getty Images

Plastics are responsible for wide-ranging health impacts including cancers, lung disease and birth defects, according to the first analysis of the health hazards of plastics across their entire life cycle - from extraction for manufacturing, through to dumping into landfill and oceans.

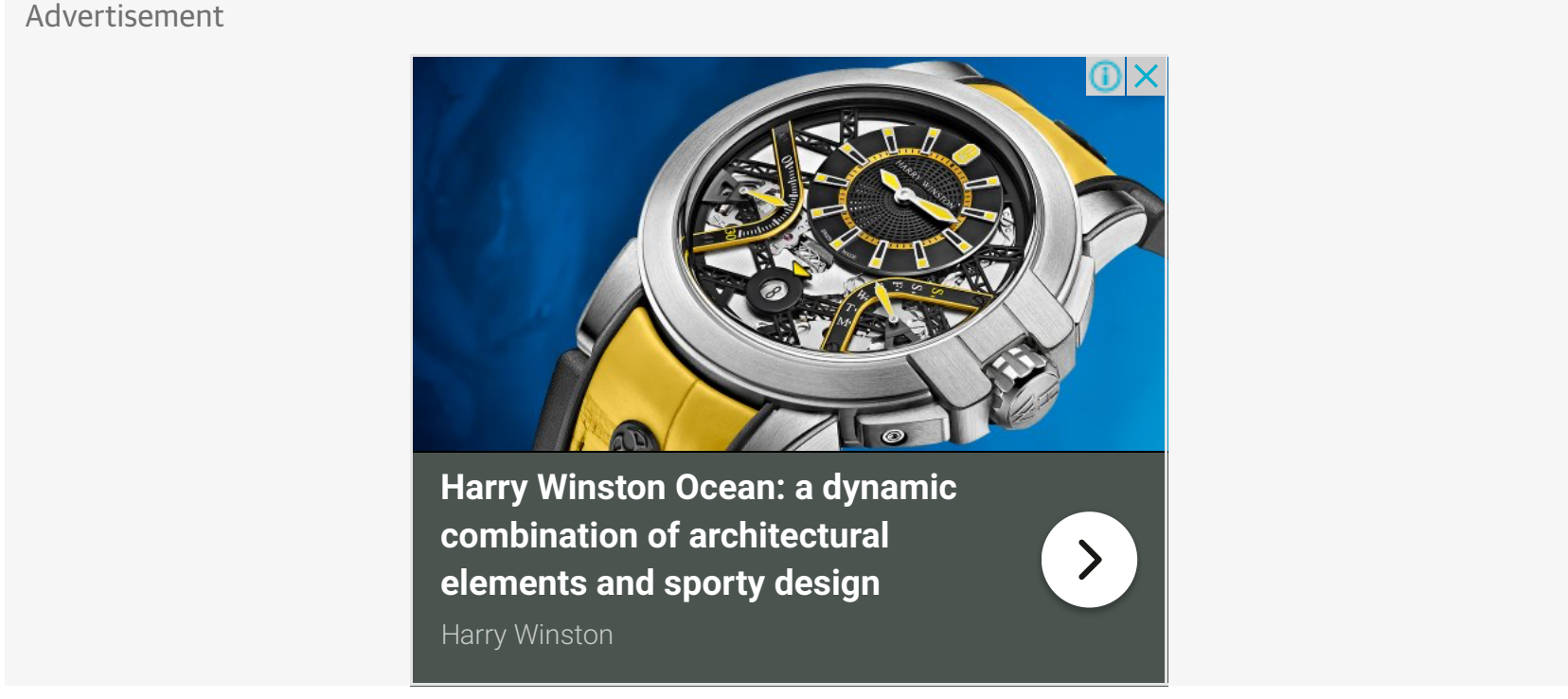
Led by the Boston College Global Observatory on Planetary Health in partnership with Australia's Munderoo Foundation and the Centre Scientifique de Monaco, the review found "current patterns of plastic production, use, and disposal are not sustainable and are responsible for significant harms to human health ... as well as for deep societal injustices".

"The main driver of these worsening harms is an almost exponential and still accelerating increase in global plastic production," the analysis, published in the medical journal *Annals of Global Health*, found. "Plastics' harms are further magnified by low rates of recovery and recycling and by the long persistence of plastic waste in the environment."

Coalminers, oil workers and gas field workers who extract fossil carbon feedstocks for plastic production, along with plastic production workers, were at particular risk of harm, the report found.

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These workers "suffer increased mortality from traumatic injury ... silicosis, cardiovascular disease, chronic obstructive pulmonary disease, and lung cancer," the report said.



"Plastic production workers are at increased risk of leukaemia, lymphoma ... brain cancer, breast cancer, mesothelioma ... and decreased fertility. Plastic recycling workers have increased rates of cardiovascular disease, toxic metal poisoning, neuropathy, and lung cancer."

Meanwhile, residents of communities adjacent to plastic production and waste disposal sites experience increased risks of premature birth, low birth weight, asthma, childhood leukaemia, cardiovascular disease, chronic obstructive pulmonary disease, and lung cancer. The report referred to evidence that infants in the womb and young children were at particularly high risk.

The article recommends a global plastics treaty to control the manufacture and use of plastics, and to reduce the disproportionate health and environmental impacts of plastics on coastal and ocean-dependent communities and those working in high-risk industries. The authors wrote that any treaty should be in accord with the mandate set in March 2022 at the UN Environment Assembly.

Frank Seebacher, a professor in biology at the University of Sydney's school of life and environmental sciences, agreed that a binding treaty was needed.

"Plastics are on par with climate change in their harmful effects globally, and drive climate change with their need for fossil fuels," he said.

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"The call for better management of plastics is an often-repeated refrain in the literature, particularly because most plastic use is unnecessary - for example, single use plastic and packaging - and can be easily replaced. This new paper looks like it is making a very valuable contribution by synthesising the available literatures into a set of concrete recommendations."

Group leader of the inflammation biology group at the QIMR Berghofer in Brisbane, Prof Andreas Suhrbier, said nearly all humans now consumed "a fair amount of plastic" and it was crucial that more research funding be dedicated to examining its impact.

"This is estimated at a credit card's worth of plastic per week, usually in the form of microplastics," Suhrbier said.

"Sadly, the amount of good medical research in this space is very limited. What are the direct detrimental effects on human health of such plastic consumption? What diseases are exacerbated by such plastic consumption? Who in our population would be most vulnerable?"

"Questions regarding the health impacts of microplastic consumption are hard to answer without dedicated research funding and some well-constituted studies that establish a causal relationship between microplastic consumption and a disease or disorder."

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