Study suggests cancer risk from depleted uranium

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Depleted uranium, which is used in armour-piercing ammunition, causes widespread damage to DNA which could lead to lung cancer, according to a study of the metal's effects on human lung cells. The study adds to growing evidence that DU causes health problems on battlefields long after hostilities have ceased.

DU is a byproduct of uranium refinement for nuclear power. It is much less radioactive than other uranium isotopes, and its high density - twice that of lead - makes it useful for armour and armour piercing shells. It has been used in conflicts including Bosnia, Kosovo and Iraq and there have been increasing concerns about the health effects of DU dust left on the battlefield. In November, the Ministry of Defence was forced to counteract claims that apparent increases in cancers and birth defects among Iraqis in southern Iraq were due to DU in weapons.

Now researchers at the University of Southern Maine have shown that DU damages DNA in human lung cells. The team, led by John Pierce Wise, exposed cultures of the cells to uranium compounds at different concentrations.

The compounds caused breaks in the chromosomes within cells and stopped them from growing and dividing healthily. "These data suggest that exposure to particulate DU may pose a significant [DNA damage] risk and could possibly result in lung cancer," the team wrote in the journal Chemical Research in Toxicology.

Previous studies have shown that uranium miners are at higher risk of lung cancer, but this has often been put down to the fact that miners are also exposed to radon, another cancer-causing chemical.

Prof Wise said it is too early to say whether DU causes lung cancer in people exposed on the battlefield because the disease takes several decades to develop.

"Our data suggest that it should be monitored as the potential risk is there," he said.

Prof Wise and his team believe that microscopic particles of dust created during the explosion of a DU weapon stay on the battlefield and can be breathed in by soldiers and people returning after the conflict.

Once they are lodged in the lung even low levels of radioactivity would damage DNA in cells close by. "The real question is whether the level of exposure is sufficient to cause health effects. The answer to that question is still unclear," he said, adding that there has as yet been little research on the effects of DU on civilians in combat zones. "Funding for DU studies is very sparse and so defining the disadvantages is hard," he added.