Weekly alcohol consumption of less than 14 units per week does not appear to be associated with an increased risk of abnormal liver blood tests.

**INTRODUCTION**
Rheumatoid arthritis is a chronic inflammatory disease that affects a person’s joints, causing pain and disability. It can also affect internal organs. Rheumatoid arthritis is more common in older people, but there is also a high prevalence in young adults, adolescents and even children, and it affects women more frequently than men.

People with rheumatoid arthritis who take a drug called methotrexate are advised to limit their alcohol intake due to concerns that it may affect the liver.

**WHAT DID THE AUTHORS HOPE TO FIND?**
The authors wanted to understand how drinking different amounts of alcohol affects a person’s liver blood tests, and whether it causes liver damage in people taking methotrexate for their rheumatoid arthritis.

**WHO WAS STUDIED?**
The study looked at nearly 12,000 people with rheumatoid arthritis in the UK whose General Practitioners (GPs) contributed information to a research database called the Clinical Practice Research Datalink (CPRD). Everyone in the study had started taking methotrexate between 1987 and 2016.

**HOW WAS THE STUDY CONDUCTED?**
This was a retrospective observational study, which means that the authors used the existing database to look back and find information. There was no interventional treatment given.

The authors collected information about how many units of alcohol people reported drinking per week. They also looked at their RA diagnosis, methotrexate prescriptions, the frequency of their liver blood tests and what those tests showed. A statistical model was developed to work out the risk of having an abnormal liver blood test for each level of alcohol a person consumed. As the UK government currently recommends that people should drink no more than 14 units of alcohol per week, people in the study were split into five groups with weekly consumption of 0, 1–7, 8–14, 15–21 or more than 21. Other factors which could affect both alcohol consumption and the liver (such as a person’s age) were taken into account in the statistical model.

**WHAT WERE THE MAIN FINDINGS OF THE STUDY?**
The authors found that the risk of having an abnormal liver blood test was the same in people who drank fewer than 14 units per week and those who did not drink at all. People who reported drinking more than 21 units of alcohol per week had an 85% increase in the occurrence of abnormal liver blood tests compared to those who did not drink, which indicates that these people may be at risk of liver damage.

**ARE THESE FINDINGS NEW?**
This is the largest study to date to investigate in detail the effect of drinking different amounts of alcohol on liver damage in people with rheumatoid arthritis taking methotrexate. In particular, it is the first time that this has been investigated using routinely collected information, which is important because people in a research study might alter how they report alcohol consumption.
WHAT ARE THE LIMITATIONS OF THE STUDY?

The authors were able to investigate only the effect of drinking different amounts of alcohol on liver blood tests. Sometimes liver damage can happen which does not show up in blood tests, but which would be seen on a scan, or if a sample of tissue was taken and looked at under a microscope. However, those tests are not routinely recommended in people taking methotrexate, and blood tests are used to monitor the liver, which is why the authors chose this way of measuring the results.

Because the study used GP records, it is possible that some people were misdiagnosed and did not actually have rheumatoid arthritis. It is also possible that people were not honest when telling their GP how many units of alcohol they have a week. However, other studies have found that self-reported alcohol consumption is usually reliable. Importantly if people had lied about having lower consumption rates, the authors would expect to have seen higher rates of abnormal liver blood tests in the groups drinking low or moderate amounts of alcohol.

WHAT DO THE AUTHORS PLAN ON DOING WITH THIS INFORMATION?

The results of this study have been shared with Arthritis Research UK, who publish information leaflets for people about the drugs used to treat rheumatoid arthritis. The results have also been presented at medical conferences. The authors are considering doing another study in people taking methotrexate for other diseases such as psoriatic arthritis.

WHAT DOES THIS MEAN FOR ME?

If you have rheumatoid arthritis, these results suggest that drinking more than 14 units of alcohol per week whilst taking methotrexate may significantly increase your risk of liver damage. However, drinking fewer than 14 units of alcohol per week is not associated with an increased risk of liver damage as measured by blood tests.