

Doctor, I have heard that cancer can cause blood clots. What tests should I have done to check if I have cancer?

About 4 out of 100 people who are diagnosed with a deep vein thrombosis (DVT) or pulmonary embolism (PE) that is unexplained will be found to have cancer as the cause. However, having tests done to look for cancer is not always helpful, and in some cases, can be harmful.

We should check that the cancer screening tests that are recommended for everyone in your sex and age group are up-to-date. We will also pay careful attention to any unexplained pain, bleeding, or unintentional weight loss you develop in the future.

What's the evidence?

Understanding the problem

Many people are diagnosed with DVT or PE that is unexplained (no obvious reason why it happened). For most people, the cause will remain a mystery. However, cancer is known to cause blood clots in some people, and about 4 out of 100 people with unexplained DVT or PE will have cancer without knowing they have it.

Cancer Care Ontario (<https://www.cancercareontario.ca/en/get-checked-cancer>) recommends tests to check for cancer in everyone depending on their sex and age. These tests are called cancer screening tests. For example, women over age 50 are advised to have a mammogram to check for breast cancer every 2 years, and men and women over age 50 are advised to have a test for blood in the stool every 2 years to check for bowel cancer. (**These are just examples, and the guidelines differ for people with a personal or strong family history of cancer.)

Researchers asked if, in addition to the routine cancer screening tests, doctors should arrange for a CT scan (special type of x-ray) of the abdomen and pelvis for everyone who has an unexplained DVT or PE. If CT scans find more cancers at an early stage, they may be more

treatable, and therefore finding them could save lives. However, some cancers do not require treatment in the early stages, and finding them can lead to unnecessary, potentially harmful tests (e.g., biopsy) and increased anxiety for patients. Also, CT scans require use of a radioactive dye which can cause allergic reactions and serious kidney problems in some patients.

The study

Who? The study included 854 people (average age 53; 67% men) who had a new diagnosis of unexplained DVT or PE.

What? The study compared adding a CT of the abdomen and pelvis to routine cancer screening tests.

CT scan + routine cancer screening tests	vs	Routine cancer screening tests only
<p>CT scan of abdomen and pelvis + routine cancer screening tests (listed in next column)</p>		<p>All of the following: routine blood work, physical examination, chest x-ray, and, if not done within the past year:</p> <ul style="list-style-type: none"> • breast examination and/or mammogram (women over 50 years of age);* • Papanicolaou (PAP) test and pelvic examination (women 18 to 70 years of age who had ever been sexually active);* • prostate examination and prostate-specific antigen (PSA) blood test (men over 40 years of age).* <p>*These were the recommended cancer screening tests during the time frame this study was performed.</p>

What the researchers found

Adding a CT scan of the abdomen and pelvis to routine cancer screening tests did not find more cancers and did not reduce the risk of death due to cancer.

Summary of findings

CT + routine cancer screening tests vs Routine cancer screening tests only after an unexplained DVT or PE

Outcomes	CT scan + routine cancer screening tests	Routine cancer screening tests only	Results
Cancers found by cancer screening tests	5 out of 100 people	3 out of 100 people	No evidence that adding a CT scan found more cancers*
New cancers diagnosed 12 months after cancer screening tests were negative	1 out of 100 people	1 out of 100 people	No evidence that adding a CT scan reduced deaths due to cancer*

*Although the rates for the 2 groups look different, the differences were not statistically significant—this means that the difference could simply be due to chance rather than due to the different tests given.

This Evidence Summary is based on the following article:

Carrier M, Lazo-Langner A, Shivakumar S, et al. **Screening for Occult Cancer in Unprovoked Venous Thromboembolism.** *N Engl J Med.* 2015 Aug 20;373(8):697-704. PubMed (<https://www.ncbi.nlm.nih.gov/pubmed/26095467?dopt=Abstract>)

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Glossary

DVT	formation of a blood clot within a vein deep within the leg
PE	blood clot(s) that cause obstruction of blood vessels within the lungs (pulmonary artery), after travelling from veins, most commonly within the leg or arm or pelvis

