

# The effect of intravenous and oral contrast on the SUV in 18F-FDG PET-CT

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Our goal is to study the effect of intravenous and oral contrast on the SUV in 18F-FDG PET-CT. The results will contribute to the adequate quantification of 18F-FDG-uptake in different clinical circumstances and the efficient use of combined PET-CT...

<b>Ethical review</b>	Approved WMO
<b>Status</b>	Pending
<b>Health condition type</b>	Other condition
<b>Study type</b>	Observational invasive

## Summary

### ID

NL-OMON32605

### Source

ToetsingOnline

### Brief title

The effect of intravenous and oral contrast on the SUV in 18F-FDG PET-CT

### Condition

- Other condition
- Respiratory and mediastinal neoplasms malignant and unspecified

### Synonym

calculation of the uptake intensity of radioactive sugar among different scan circumstances in 18F-FDG PET-CT imaging

### Health condition

lymfomen (HD en NHL), cervixcarcinoma

### Research involving

Human

## Sponsors and support

**Primary sponsor:** Academisch Medisch Centrum

**Source(s) of monetary or material Support:** Ministerie van OC&W

## Intervention

**Keyword:** 18F-FDG PET-CT, intravenous contrast, oral contrast, SUV

## Outcome measures

### Primary outcome

De differences in SUV measurements with and without contrast agents will be determined.

### Secondary outcome

not applicable

## Study description

### Background summary

In 18F-FDG positron emission tomography there is attenuation of tissue, resulting in weakening of the signal. To correct the weakening of the signal is an attenuation algorithm necessary. In case of the combined PET-CT, the attenuation map is based on the HU values of the CT images. Intravenous and oral contrast attenuate more (higher HU values) due to their high atomic numbers. This higher attenuation leads to overcorrection of the standard uptake value (SUV) of 18F-FDG, the measurement of radioactive sugar uptake in tissue. The exact determination as well as detecting small changes of SUV becomes more and more important in daily practice. Since the effect of contrast agents on SUV is not yet evaluated, scientific studies advise against the use of contrast agents in PET-CT. This results in a less patient friendly and less effective imaging protocol.

### Study objective

Our goal is to study the effect of intravenous and oral contrast on the SUV in 18F-FDG PET-CT. The results will contribute to the adequate quantification of 18F-FDG-uptake in different clinical circumstances and the efficient use of

combined PET-CT imaging.

## **Study design**

10 patients undergo the referred PET-CT (low dose) investigation without any contrast agents, followed by administration of oral contrast and a repeated imaging protocol with intravenous contrast as well.

10 patients undergo the referred PET-CT (diagnostic dose) investigation without any contrast agents, followed by administration of oral contrast and a repeated imaging protocol with intravenous contrast as well.

Reinjection of 18F-FDG is not necessary.

## **Study burden and risks**

There are no known health hazards in connection with one extra CT investigation.

## **Contacts**

### **Public**

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## **Trial sites**

### **Listed location countries**

Netherlands

## **Eligibility criteria**

## Age

Adults (18-64 years)

Elderly (65 years and older)

## Inclusion criteria

-18F-FDG PET-CT indication with i.v. and/ or oral contrast; eg. staging, restaging, therapy monitoring or radiotherapy planning of malignancy

-expected circumscribed malignancy (eg. lung cancer, lymphomas or cervical cancer)

-informed consent

## Exclusion criteria

Age < 18years

Pregnancy

Renal insufficiency

Contrast allergy

Calustrophobia

Respiratory assistance or scanning under total anaesthesia

## Study design

### Design

**Study type:** Observational invasive

Masking: Open (masking not used)

Control: Uncontrolled

Primary purpose: Diagnostic

### Recruitment

NL

Recruitment status: Pending

Start date (anticipated): 15-09-2008

Enrollment: 20

Type: Anticipated

## Ethics review

Approved WMO

Application type:

First submission

Review commission:

METC Amsterdam UMC

## Study registrations

### Followed up by the following (possibly more current) registration

No registrations found.

### Other (possibly less up-to-date) registrations in this register

No registrations found.

### In other registers

**Register**

CCMO

**ID**

NL24420.018.08