

# Package ‘modTurPoint’

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**Type** Package

**Imports** stats

**Title** Estimate ED50 Based on Modified Turning Point Method

**Version** 0.1.0

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**Description** Turning point method is a method proposed by Choi (1990) <[doi:10.2307/2531453](https://doi.org/10.2307/2531453)> to estimate 50 percent effective dose (ED50) in the study of drug sensitivity. The method has its own advantages for that it can provide robust ED50 estimation. This package contains the modified function of Choi's turning point method.

**License** GPL-3

**Encoding** UTF-8

**LazyData** true

**RoxygenNote** 6.0.1

**NeedsCompilation** no

**Repository** CRAN

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groupS

*A Real Experiment Dose Data*

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**Description**

A group of real experiment data based on up-and-down method.

**Usage**

groupS

**Format**

A data of 36 samples and 2 variables:

**responseSequence** A value of 0 or 1 indicating the experiment outcome. 0 refers to a failure outcome while 1 refers to a success.

**doseSequence** The dose given in each experiment.

**Source**

The data is from the article in the references below.

**References**

Niu B, Xiao JY, Fang Y, et al. Sevoflurane-induced isoelectric EEG and burst suppression: differential and antagonistic effect of added nitrous oxide. *Anaesthesia* 2017; 72: 570-9.

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groupSN

*A Real Experiment Dose Data*

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**Description**

A group of real experiment data based on up-and-down method.

**Usage**

groupSN

**Format**

A data of 38 samples and 2 variables:

**responseSequence** A value of 0 or 1 indicating the experiment outcome. 0 refers to a failure outcome while 1 refers to a success.

**doseSequence** The dose given in each experiment.

**Source**

The data is from the article in the references below.

**References**

Niu B, Xiao JY, Fang Y, et al. Sevoflurane-induced isoelectric EEG and burst suppression: differential and antagonistic effect of added nitrous oxide. *Anaesthesia* 2017; 72: 570-9.

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 modTurPoint

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*Modified Turning Point Method for ED50 Estimation*


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**Description**

50 percent effective dose (abbreviated as ED50) is one of the most concerns in the field of Anesthesiology. There are many methods to estimate ED50 and its confidence interval. Turning point method is one of them proposed by Choi in 1990 and here is the modified function to realize the ED50 estimation.

**Usage**

```
modTurPoint(doseSeries, onlyTurPoint = FALSE, confidence = 0.95)
```

**Arguments**

doseSeries	A numeric vector. It can be the whole dose sequence given in a group of experiments in the order. And it can also be the turning point sequence calculated.
onlyTurPoint	A logical value indicating whether the doseSeries is a turning point sequence or not, the default is value is FALSE.
confidence	A value ranging from 0 to 1 that represents the confidence level. The default value is 0.95.

**Value**

A list:

Estimate	The point estimate of ED50 using modified turning point method.
Confidence	Confidence value input.
CI.lower	The lower bound of confidence interval under a certain confidence level.
CI.upper	The upper bound of confidence interval under a certain confidence level.

**References**

Choi SC Interval estimation of the LD50 based on an up-and-down experiment. *Biometrics* 1990; 46: 485-92.

**Examples**

```
library(modTurPoint)
dose1 <- c(3.1, 3.2, 3.3, 3.2, 3.1, 3.2, 3.3, 3.2, 3.3)
modTurPoint(doseSeries = dose1, confidence = 0.9)
dose2 <- c(3.25, 3.15, 3.25, 3.25)
modTurPoint(doseSeries = dose2, onlyTurPoint = TRUE, confidence = 0.9)
```

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