

# Dysphagia in Parkinson's Disease: High-risk Defining Clinical Parameters

Janine A Simons<sup>1</sup>, Nora Eiseemann<sup>2</sup>, Urban M Fietzek<sup>3</sup>, Alexander Katalinic<sup>1,2</sup>

<sup>1</sup>Institute for Social Medicine and Epidemiology, Universität zu Lübeck, Germany <sup>2</sup>Institute for Cancer Epidemiology, Universität zu Lübeck, Germany <sup>3</sup>Centre for Parkinson's Disease and Movement Disorders, Schön Klinik, Munich, Germany

## AIMS

- To define high-risk groups for oropharyngeal dysphagia and laryngeal aspiration using clinical parameters, which are reported to have positive correlations with dysphagia severity in Parkinson's disease (PD).

## METHODS

- Consecutively enrolled PD patients of a German movement disorders centre underwent neurological examinations as well as clinical and fiberoptic endoscopic swallowing evaluations.
- Along the severity grades of underlying rating-scales they were allocated to 3 groups: no dysphagia (A), oropharyngeal dysphagia (B), and dysphagia with penetration/aspiration (C)
- Cut-off values for high-risk groups (A vs C, or A vs B + C) were determined from receiver operating characteristic curves for modified Hoehn & Yahr scale (H&Y), UPDRS III, disease duration, age, drooling score scale, dysarthria score, and body mass index.
- Relative risks and 95%-confidence intervals were calculated.

## CONCLUSION

- Motor performance with UPDRSIII  $\geq 26$  and disease stage with HY  $\geq 4$  were shown to be high risk factors for dysphagia.
- In clinical practice patients presenting these cut-offs should be screened for dysphagia with a validated disease-specific questionnaire<sup>1</sup> (Figure 2) or undergo additional diagnostics.

Figure 2 a shows the MDT-PD self-reporting outcome questionnaire (26-items, English & German language).

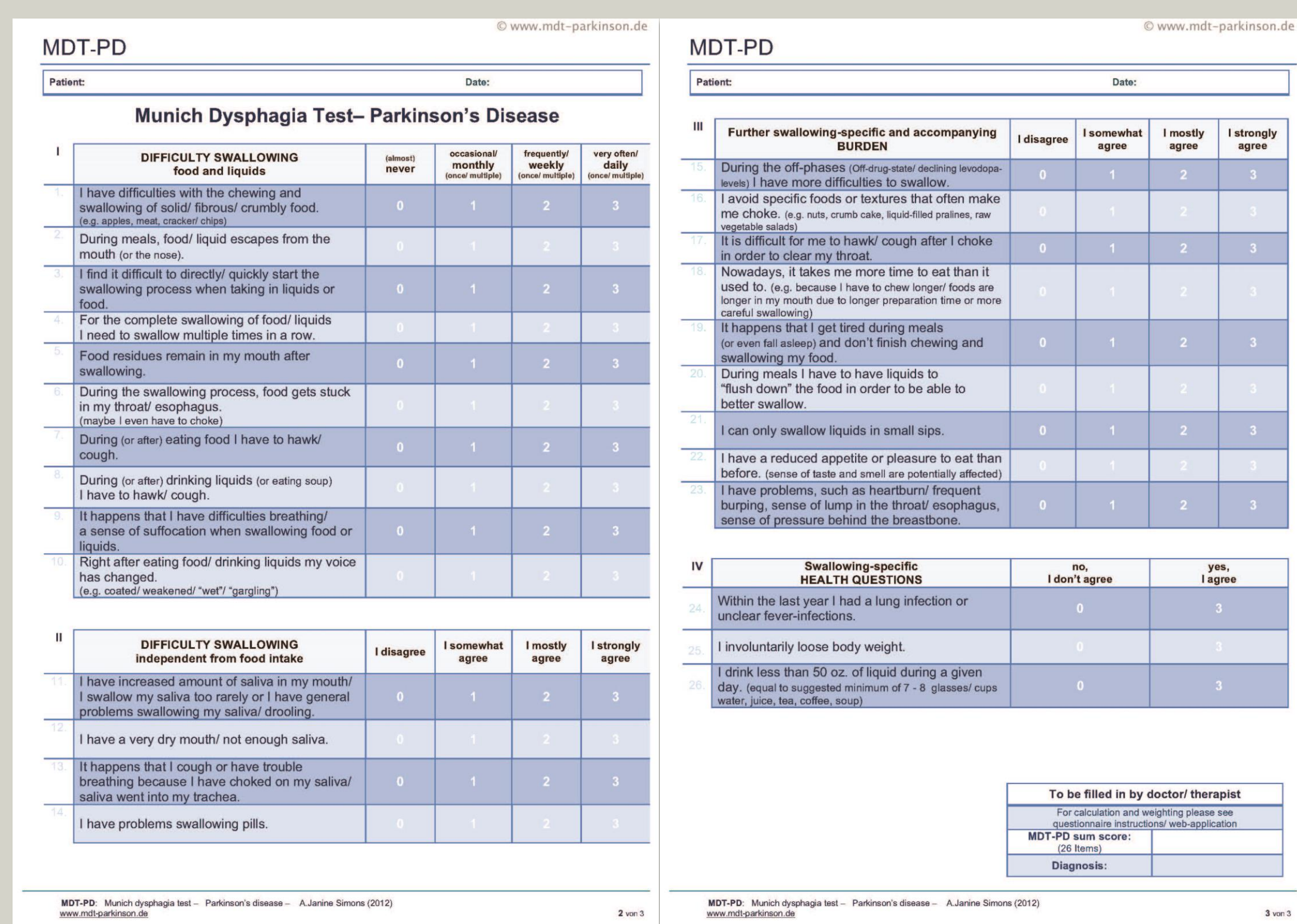
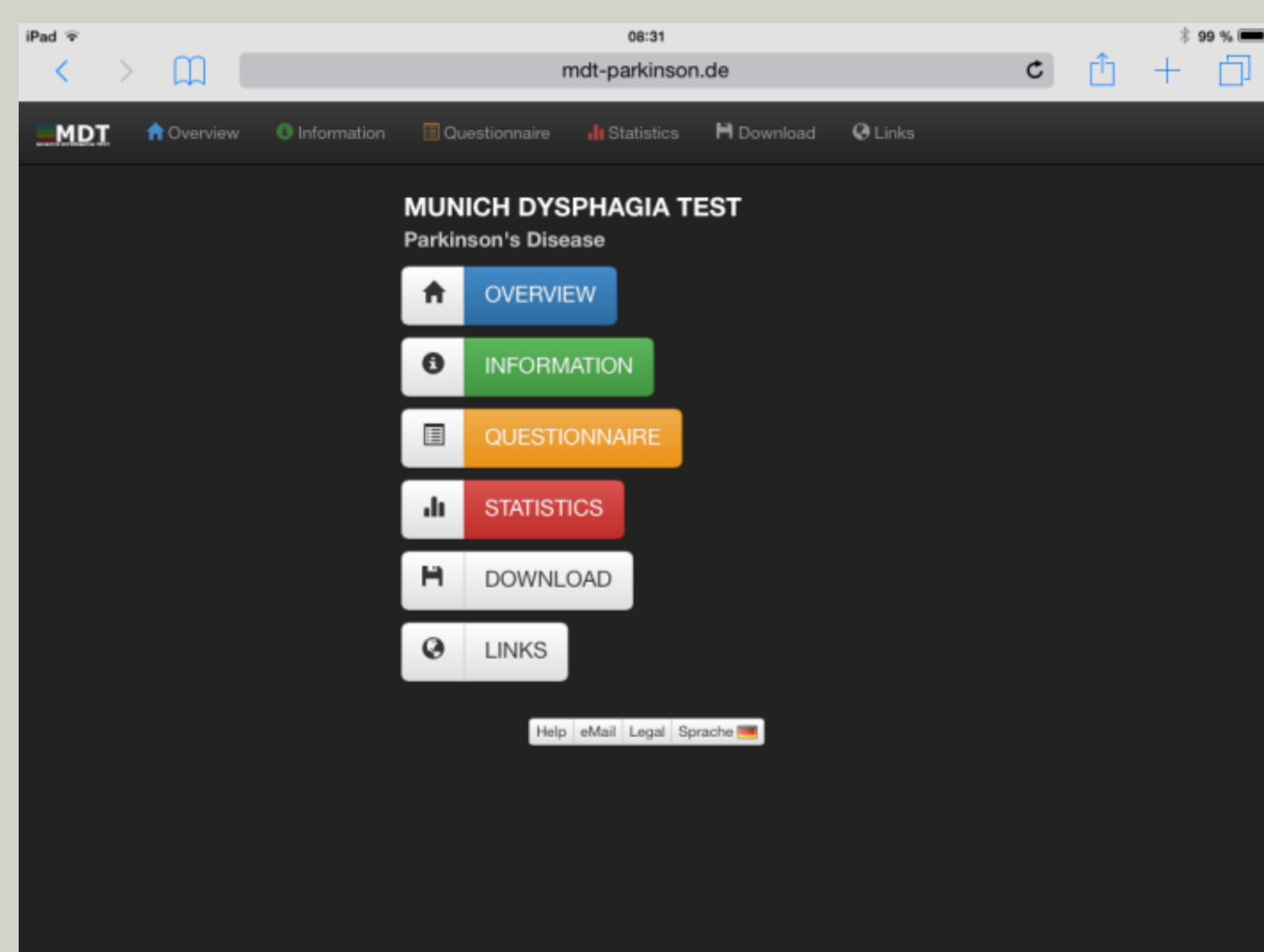


Figure 2 b shows the MDT-PD web app for quick and easy test evaluation incl. clinical interpretation. Web app runs on all popular operating systems, browsers, and devices. Outcome classifications: no noticeable dysphagia, noticeable oropharyngeal dysphagia, dysphagia with risk of penetration/aspiration



**MDT**  
MUNICH DYSPHAGIA TEST

## BACKGROUND

- Dysphagia is a highly relevant symptom in PD.
- Clinical identification is complex, and dysphagia symptoms are often diagnosed late after life-threatening complications occurred (e.g. aspiration pneumonia, malnutrition/dehydration).

## RESULTS

- The 77 patients (mean age  $70.5 \pm 8.4$ , median HY 3) were classified to group A (21), B (34), and C (22).
- Determined cut-offs were identical for both outcome groups (Figure 1).
- Dysphagia risk was significantly increased for almost all parameters.
- Highest clinical relevance was ascertained for UPDRS III and H&Y with an increased risk for dysphagia up to  $>6$  times (Table 1).

Figure 1 a - d shows determined cut-off points for those two clinical parameters discovered as strongest risk factors for dysphagia. (TP True positives, FP False positives)

Figure 1 a: UPDRS III A vs C

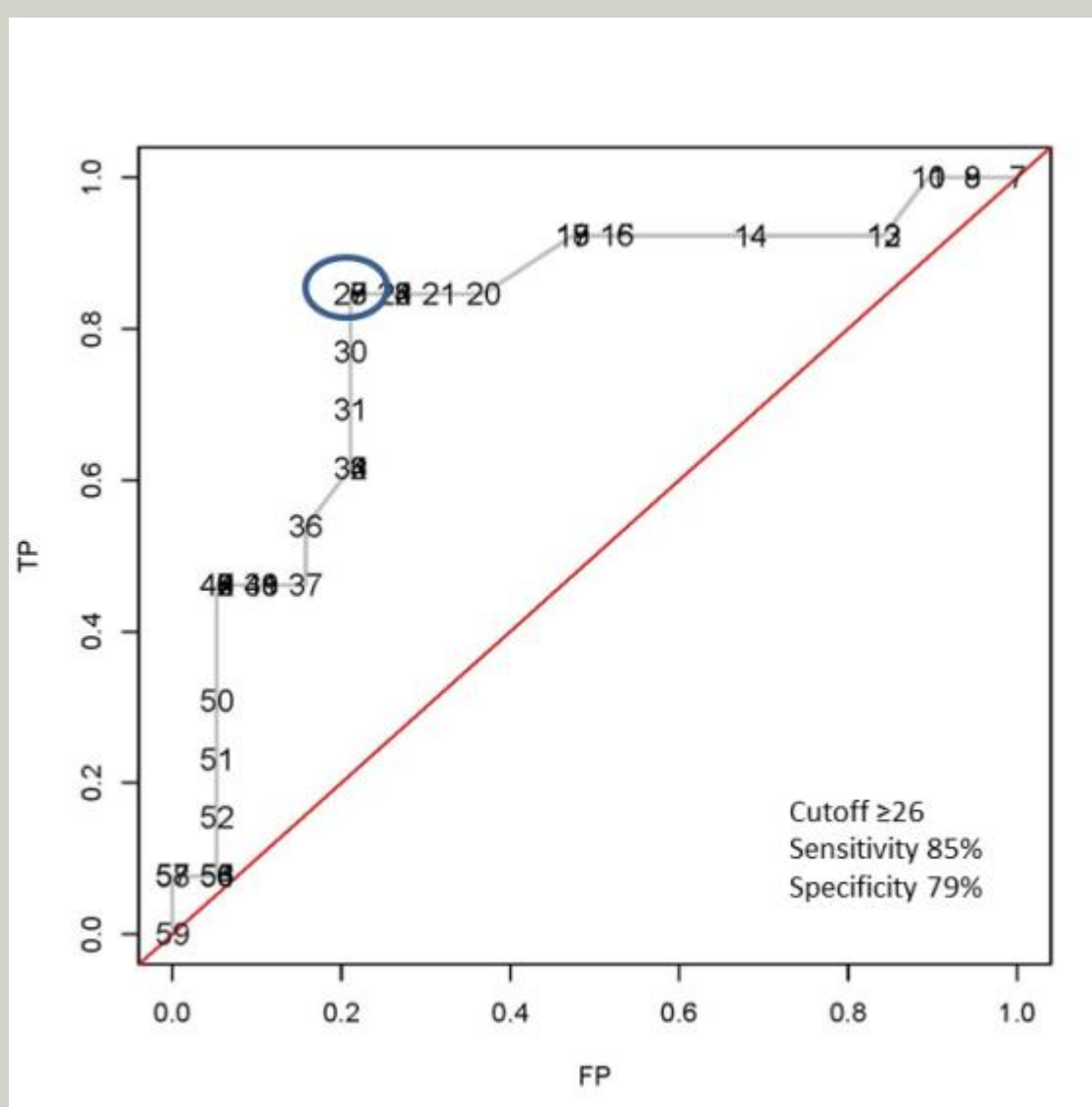


Figure 1 b: UPDRS III A vs B + C

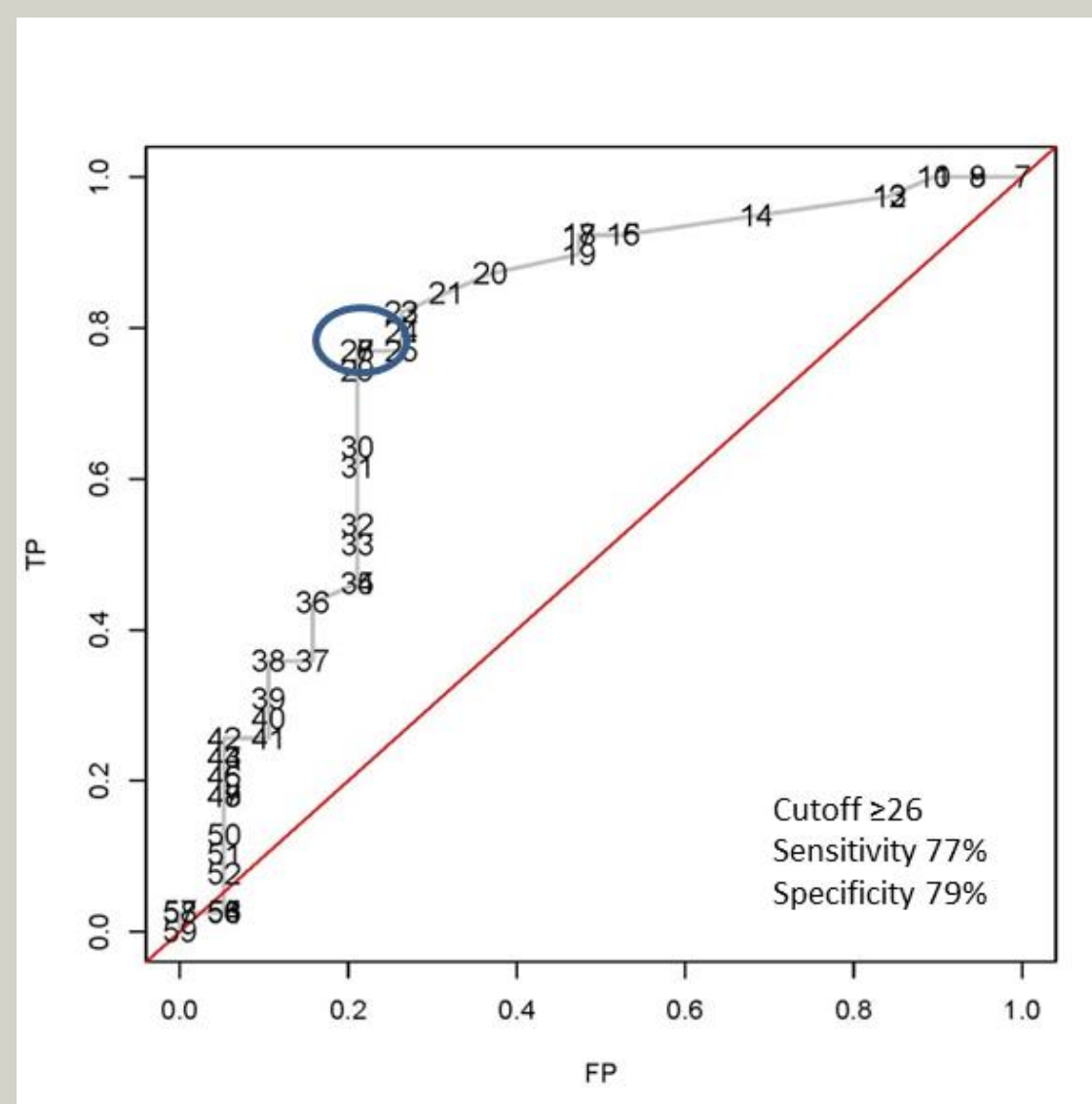


Figure 1 c: H&Y A vs C

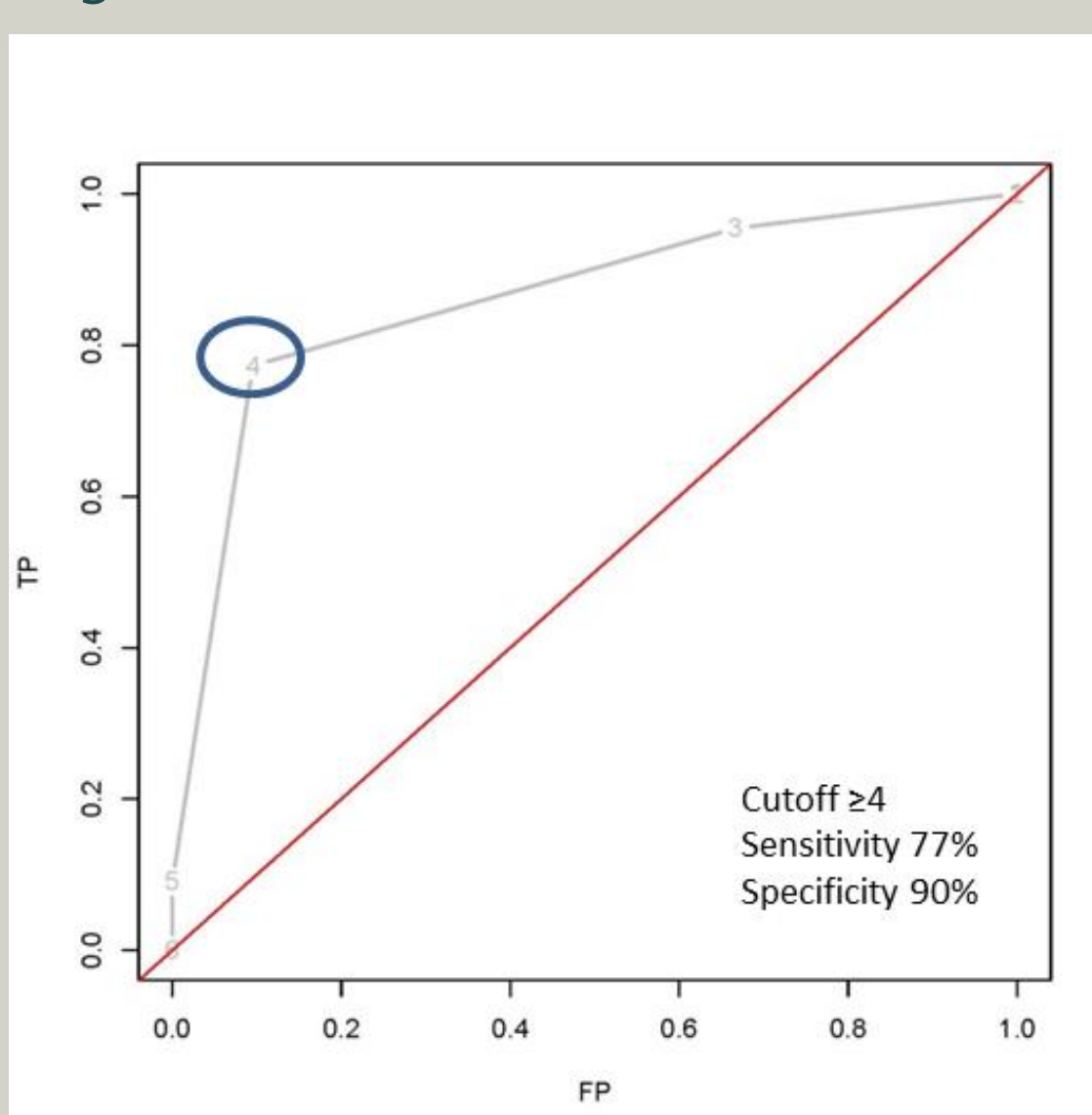


Figure 1 d: H&Y A vs B + C

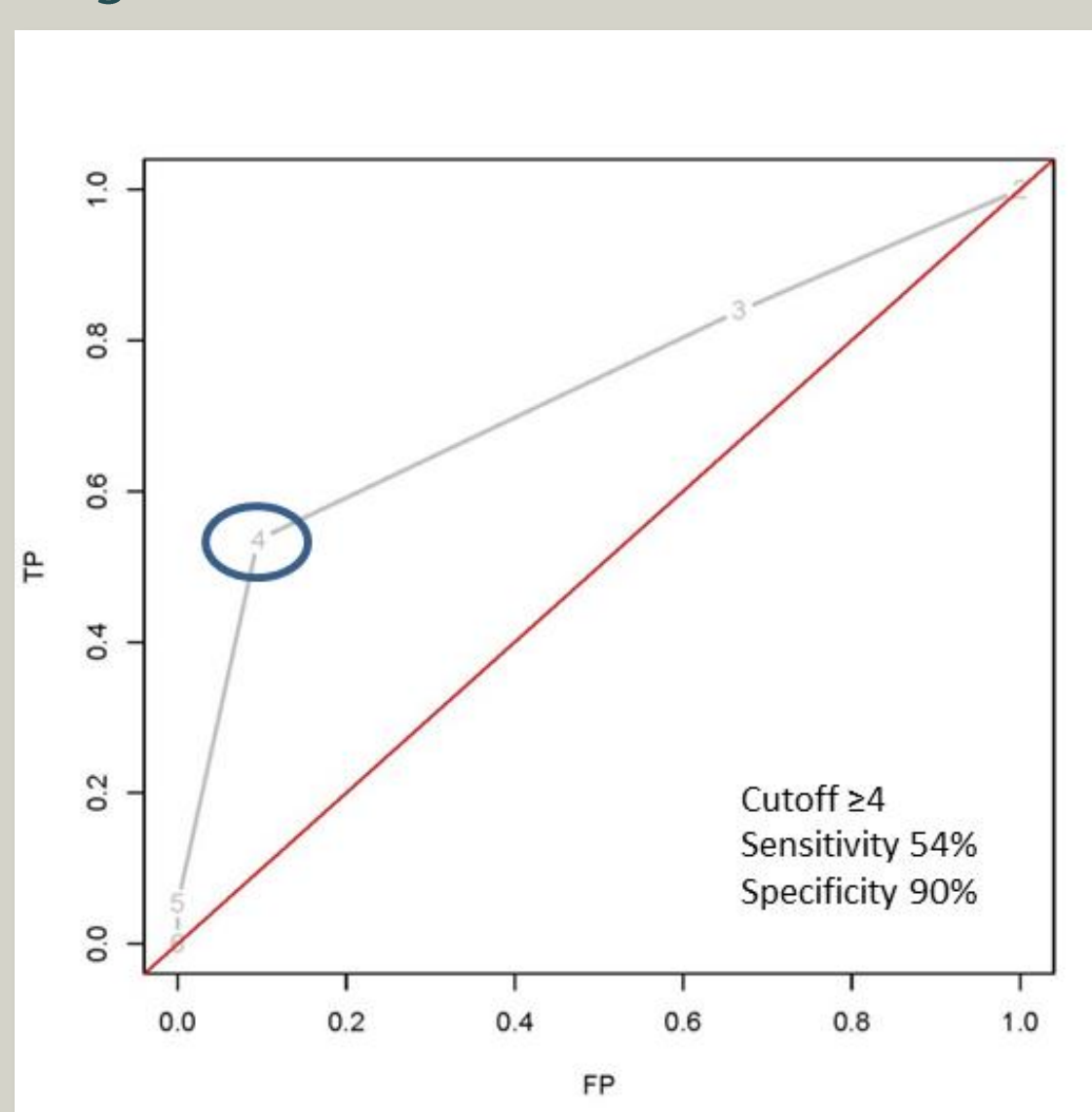


Table 1 shows the relative risks for laryngeal aspiration and/or oropharyngeal dysphagia symptoms for PD patients with the strongest clinical risk factors identified.

Dysphagia outcome	Clinical parameters	Cut-off	RR	95% CI
Group C	UPDRS III	$\geq 26$	<b>6.23</b>	1.55 – 25.02
	H&Y	$\geq 4$	<b>4.29</b>	1.90 – 9.73
Group B+C	UPDRS III	$\geq 26$	<b>2.35</b>	1.37 – 4.05
	H&Y	$\geq 4$	<b>1.62</b>	1.24 – 2.12

Dysphagia outcome based on clinical and fiberoptic endoscopic evaluation of swallowing (FEES) – Group C: dysphagia with penetration/aspiration; Group B+C: oropharyngeal dysphagia + dysphagia with penetration/aspiration; UPDRS III: Unified Parkinson's Disease Rating Scale, motor part; H&Y: mod. Hoehn & Yahr scale; RR: relative risk; CI: confidence interval

DISCLOSURE Nothing to report.

CONTACT Dr. phil. Janine Simons, Email Janine.Simons@uksh.de, Phone +49 451 500 5870, www.sozmed.uni-luebeck.de, www.mdt-parkinson.de, Poster-PDF: www.janine-simons.de & QR Code

REFERENCE 1. Simons JA, et al. Development and validation of a new screening questionnaire for dysphagia in early stages of Parkinson's disease. Parkinsonism Relat Disord 2014; 20(9): 992 – 998



IM FOCUS DAS LEBEN  
\* FOCUS ON LIFE