

# Nutritional Aspects and Challenges of Head and Neck Cancer

Akademisk avhandling  
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Sahlgrenska Universitetssjukhuset, Vita stråket 12, Göteborg,  
fredagen den 20 mars, klockan 9.00  
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## Avhandlingen baseras på följande delarbeten

- I. Berg, M\*. Hansson, C\*. Silander, E. Bove, M. Johansson, L. Haugen Cange, H. Bosaeus, I. Nyman, J. Hammerlid, E. *A randomized study comparing the nutritional effects of radiotherapy with cetuximab versus cisplatin in patients with advanced head and neck cancer.* Head & Neck 2024; 46:760–771. \*Shared first authorship.
- II. Wallmänder, C. Bosaeus, I. Silander, E. Berg, M. Haugen Cange, H. Nyman J, Hammerlid, E. *Malnutrition in patients with advanced head and neck cancer: Exploring the Global Leadership Initiative on Malnutrition (GLIM) criteria, energy balance and health-related quality of life.* Clinical Nutrition ESPEN 66 (2025) 332–342.
- III. Wallmänder, C. Bosaeus, I. Silander, E. Haugen Cange, H. Nyman, J. Fagevik Olsén, M. Blomsterwall, E. Berg, M. Hammerlid, E. *Effect of a home-based exercise program on muscle mass, fatigue, and health-related quality of life among patients with oral cancer: A randomized trial.* Head & Neck, 2026; 48:680–695.
- IV. Wallmänder, C. Haugen Cange, H. Silander, E. Larsson, H. Börjesson, M. Johansson, L. Bosaeus, I. Hammerlid, E. *Long-term follow-up study on nutritional problems and health-related quality of life among head and neck cancer survivors more than five years after diagnosis.* Manuscript submitted.

**SAHLGRENKA AKADEMIN**  
**INSTITUTIONEN FÖR KLINISKA VETENSKAPER**



# Nutritional Aspects and Challenges of Head and Neck Cancer

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## Abstract

The aim of this thesis was to study the effects of disease and treatment on nutritional status, malnutrition, and health-related quality of life (HRQoL), as well as to evaluate the effects of an exercise program on muscle mass and fatigue in patients with head and neck cancer (HNC). Papers I and II included patients with advanced HNC, mainly oropharyngeal cancer, who received combination treatment. Paper III included patients with oral cancer who mainly received treatment with surgery with or without radiotherapy (RT), and in paper IV, survivors of HNC more than 5 years after diagnosis were studied. The Global Leadership Initiative on Malnutrition (GLIM) criteria was used to assess malnutrition, and HRQoL was measured with questionnaires from the European Organisation for Research and Treatment of Cancer (EORTC). Body composition was measured with dual-energy X-ray absorptiometry (DXA) in papers I and II, and with bioelectrical impedance analysis (BIA) in papers III and IV.

**Paper I** was based on a randomized controlled trial (RCT) comparing the effects of treatment with cetuximab or cisplatin, in addition to RT. Patients treated with cisplatin needed tube feeding to a greater extent and lost more weight initially, but at the remaining follow-ups after 6 weeks no differences in weight loss were observed. No significant differences were observed between the treatment groups regarding the prevalence of malnutrition. **Paper II** included the same study cohort as in paper I, without the randomization allocation. Malnutrition was common, especially during treatment. The largest loss of muscle mass was observed at the end of treatment, thereafter the decline ceased, and a recovery was observed. Patients diagnosed with malnutrition reported poorer HRQoL at all follow-ups, except at the end of treatment, where all patients were negatively affected. **Paper III** was based on an RCT in which patients were randomized to a home-based exercise intervention or a control group. An increase in physical activity and a tendency towards reduced fatigue and better global QoL were observed among patients in the exercise group. However, no effects on muscle mass were observed. In **paper IV**, many chronic nutrition impact symptoms were observed, and the majority of long-term survivors used dietary adjustments to facilitate food intake. Participants had worse HRQoL than age- and sex-matched reference values from a Swedish normal population, and survivors with the most difficulties swallowing solid food had poorer HRQoL compared to the rest of the study group.

In conclusion, patients with HNC experienced many nutritional problems in both the short and long term. Treatment affected energy intake, body composition and HRQoL negatively, and malnutrition was common. Nutritional rehabilitation is important and might be needed for a long time after treatment. Early nutritional treatment together with muscle mass evaluation could help improve the nutritional status and recovery of patients with HNC.

**Keywords:** Head and Neck Cancer, Treatment, Nutrition impact symptoms, Malnutrition, Body composition, Health-related Quality of Life, Physical Activity, Long-term survivors