

Return to work in cancer survivors following a supervised and structured exercise intervention program

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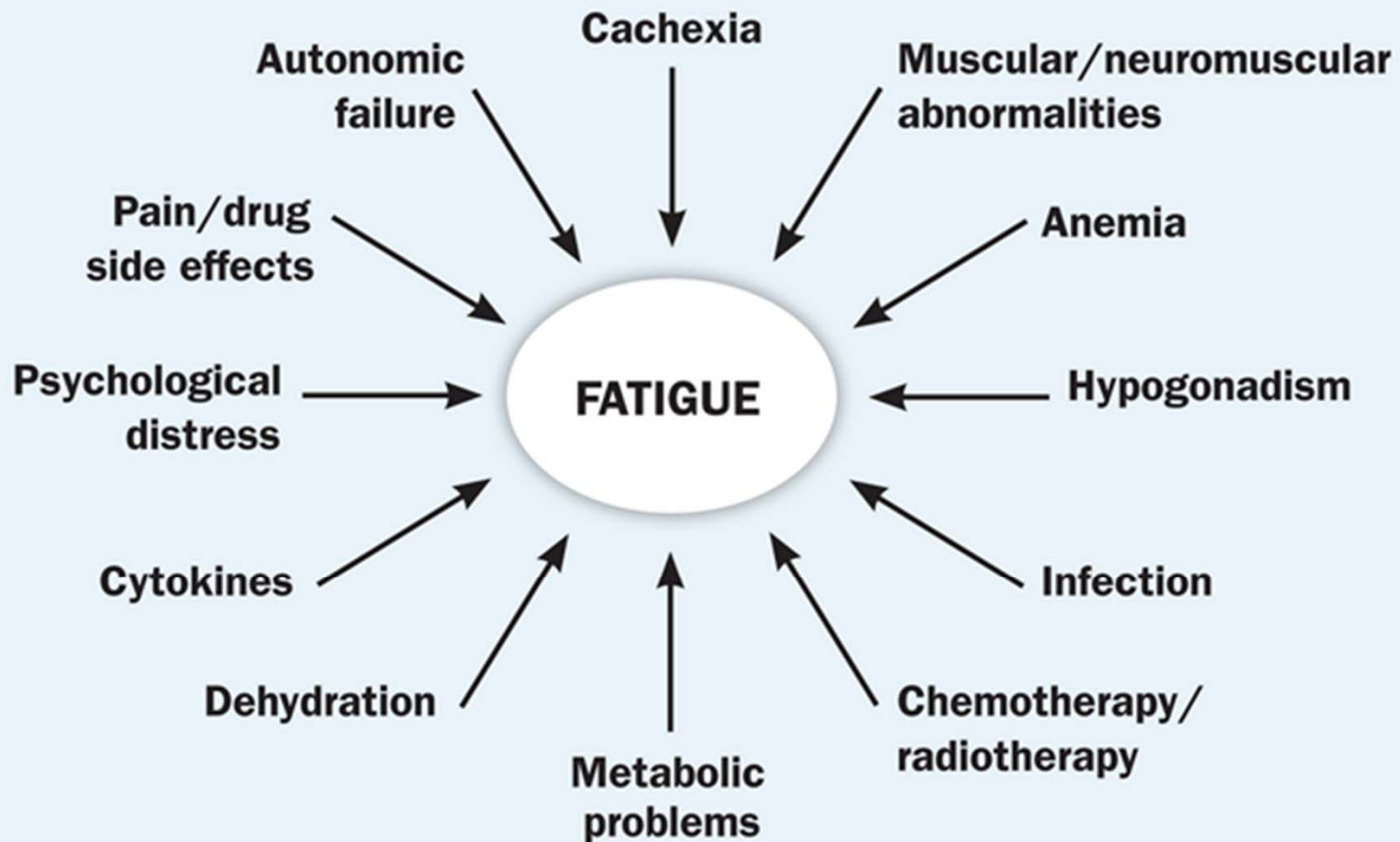
RTW cancer survivors post-exercise intervention program

- Introduction
- Research question
- Design/method
- Data and results
- Discussion
- Conclusion

Complaints after cancer treatment

- Treatment based side-effects
- Psychosocial distress
- Quality of life
- Neuromuscular abnormalities
- Exercise intolerance
- Physical restrictions/limitations
- Challenging RTW process
- Cancer related fatigue

Contributing factors to cancer related fatigue



Ref: Image gallery cancernetwork.com

Effects of exercise intervention program

- Improves
 - Increase in muscle strength (+32-168%)
 - Body composition
 - VO2max (+10-15%)
 - Psychological well-being
 - Cancer-related cognitive impairment
 - Health-related QoL

De Backer et al. Acta Oncologica 2007
Courneya et al. Med Sci Sports Exerc 2003
Mackenzie et. al Exerc Conition Interaction 2016
Munsel et. al Psy. Oncology 1999
Veenstra et. al Herstel en Balans 2000

Research question

Do cancer survivors RTW earlier following an exercise intervention program compared to usual care?

Research hypothesis

That a structured and supervised exercise intervention program would have a positive effect on the RTW of cancer survivors.

Design and method

- Research type

- Retrospective, cross sectional
- Instrument: questionnaire (TNO validated)
- Statistical analysis:- chi-square (2x2) and variance analysis (significance level $\alpha = 0.05$)

- Inclusion criteria

- Working population age <65 years
- Curative chemotherapy
- Treatment duration >6 weeks and < 52 weeks

- **Control group:** Usual care
- **Intervention group:** Participation in exercise intervention program

18 week exercise intervention program

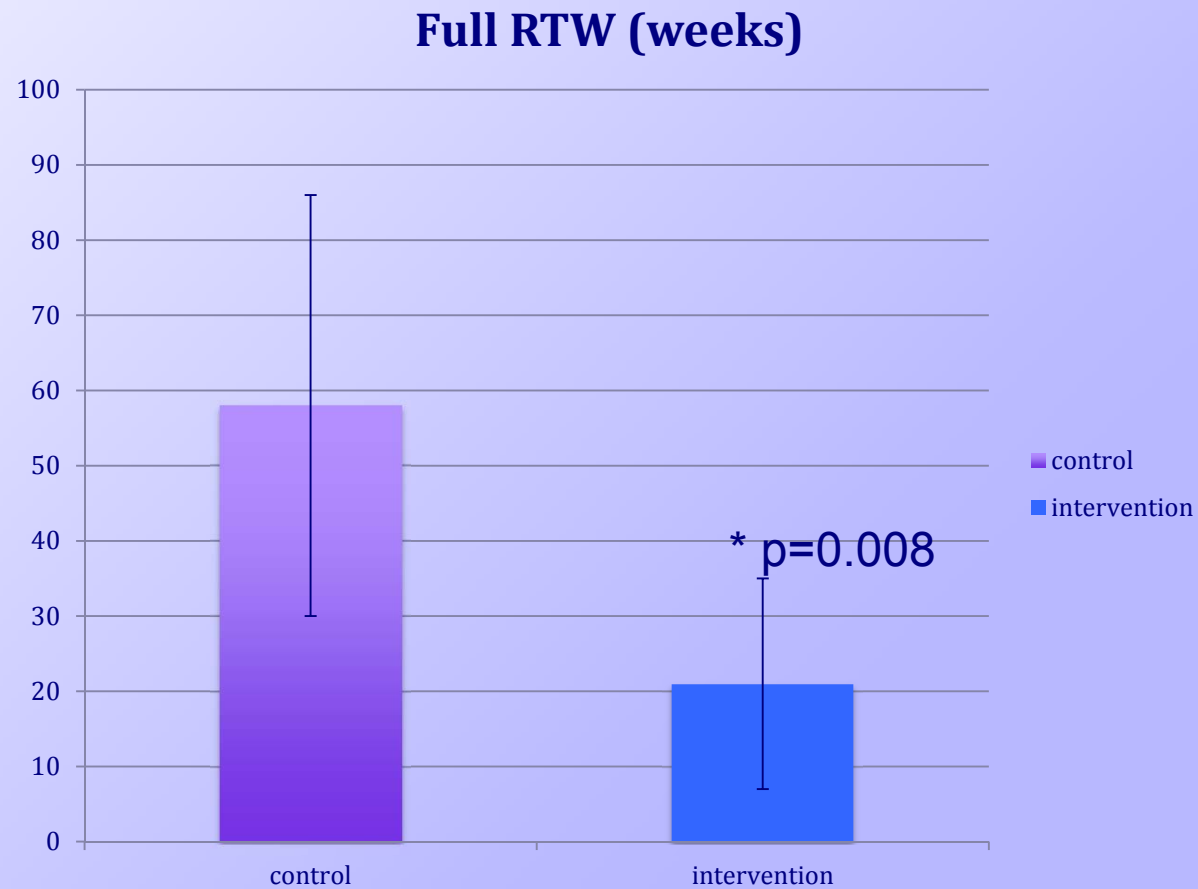
- First 12 weeks
 - 2x/week training
 - Emphasis on resistance training
- Last 6 weeks
 - 1x/week training
 - Emphasis on high intensity interval-training
- Improving
 - Body composition
 - Muscle strength
 - Endurance
- Goal
 - Reduced fatigue
 - Improved physical capacity
 - Improved QoL

Population characteristics

Population Total (N) Response	Variables	Control n=15 60%	Intervention n=15 34%
Age (years)	Average \pm SD (range)	53.1 \pm 11.7 (23-64)	48.5 \pm 7.5 (41-63)
Gender	Male	4	4
	Female	11	11
Cancer Type	Breast	8	10
	Ovarian	0	1
	Hodgkin	3	2
	Non-Hodgkin	1	1
	Intestinal	3	1
Treatment Type	Chemotherapy	15	15
	+ Radiotherapy	12	2
	+ Surgery	8	12
	+ Radiotherapy	10	12
	+ Surgery		

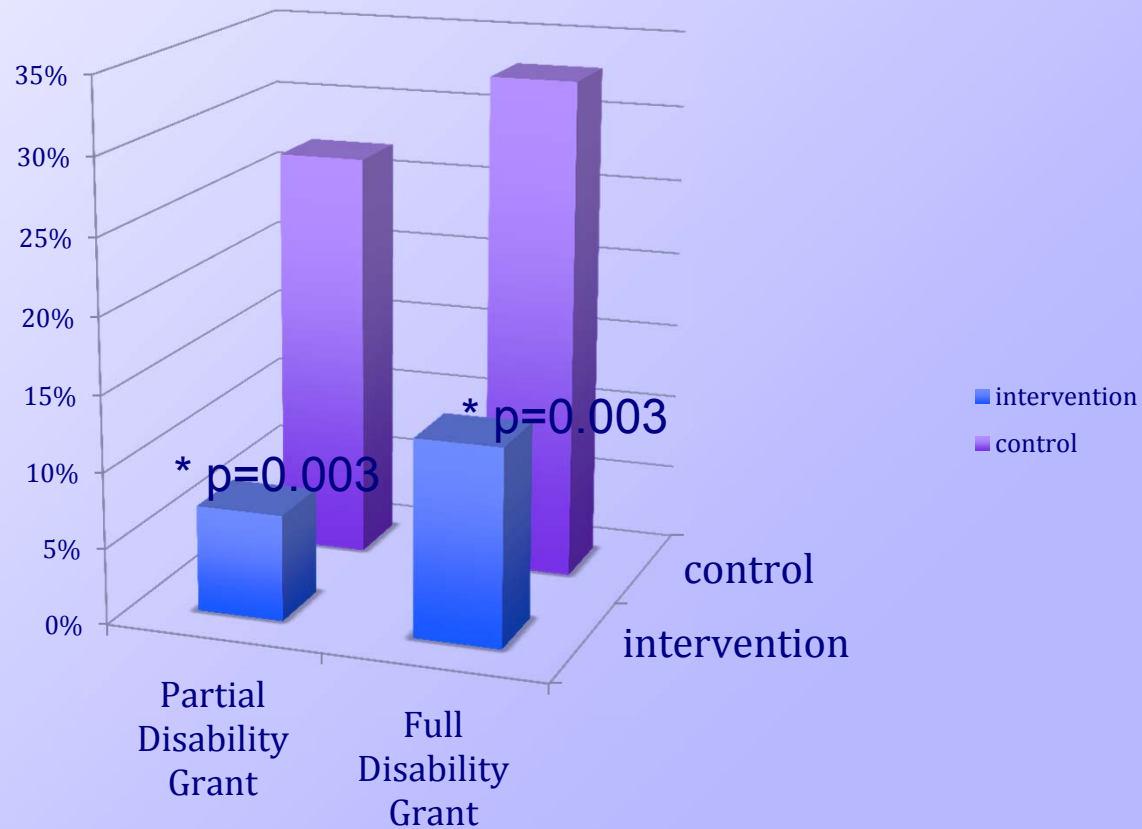
RTW

Usual care vs exercise intervention program



Disability claims

Usual care vs exercise intervention program



Self-reported experience following exercise intervention program

- 79% RTW faster than expected
- 85% Social life positively affected
- 64% Physical activity better than before exercise intervention program
- 64% Improved psychological condition

Discussion

- **Methodological limitations**
 - Group size
 - Pilot-study
 - Instrument
 - Selection Bias
- **Impact on RTW**
 - Increased physical fitness?
 - Group approach?
 - Combination?
- **Influence cancer type?**
- **Type of treatment?**
- **Other?**
- **Many uncertainties...**

Conclusion

The intervention group returned to work in half the time of usual care group.

The positive effects of the intervention were observed in the intervention group.

Supervised and structured exercise intervention program has a positive effect on the rate and extend of RTW in cancer survivors

Future prospects

- Increasing popularity prescribing exercise
- Randomised prospective research
- Subsequent studies:
 - NVAB Working group medical guideline RTW cancer June 2009, 8 June 2017
 - Van Egmond Jan 2017, Tamminga 2010, 2013, 2015
 - Waard Rommel Sept. 2012, Bruinvels et. al Dec 2014
 - Verbeeck July 2008, Ten Berge et. al 2013

Acknowledgements

Respondents

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Thank You