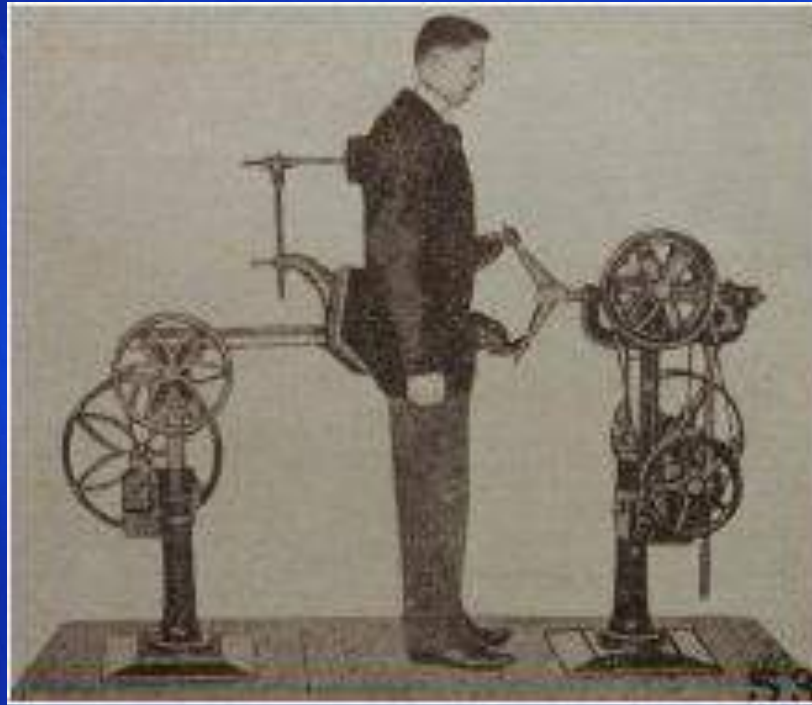


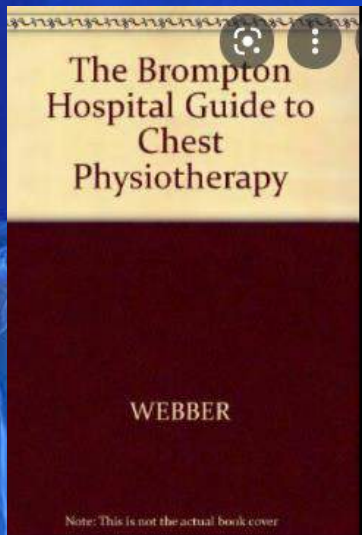
Stichting Geschiedenis Fysiotherapie



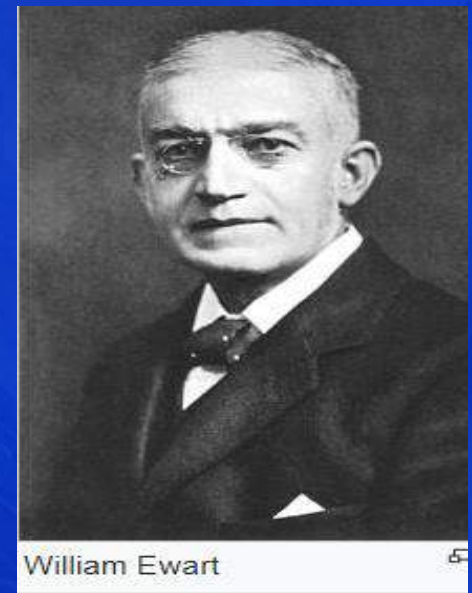
Een fysiotherapeut, die de geschiedenis van zijn beroepsgroep kent, begrijpt het heden beter en is voorbereid op de toekomst.

Geschiedenis van de long fysiotherapie

- William Ewart (1848 - 1929) was an English physician and recommended chest physiotherapy (percussion; vibrations; postural drainage) in **1901** to facilitate mucociliary clearance.
- Ewart spearheaded the idea of CPT and postural drainage for bronchiectasis and eventually cystic fibrosis patients.

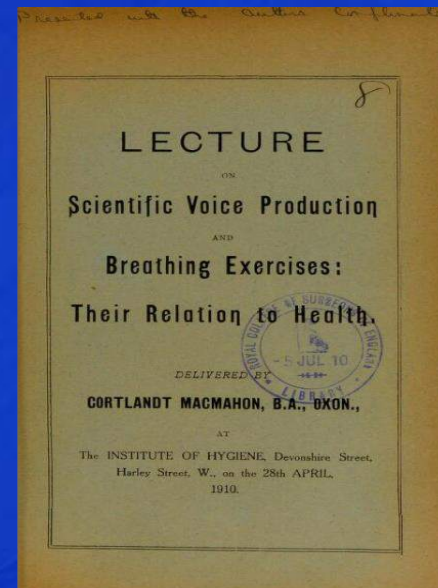


He worked at St George's Hospital and the Royal Brompton Hospital.



Geschiedenis van de (long) Fysiotherapie

- The concept of using Chest Physical Therapy (CPT) to prevent and treat post operative pulmonary complications (PPCs) was first described in **1915** by MacMahon.
- He recommended CPT with exercise, and forced exhalation, and reported that the results were "remarkable," particularly within one week.



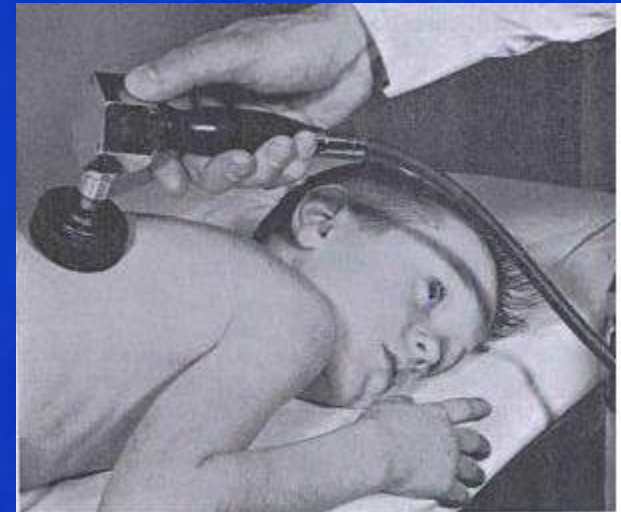
MacMahon, C, "Breathing and physical exercises for use cases of wounds in the pleura, lung and diaphragm," *Lancet*, 1915, pages 769-70.

Geschiedenis van de (long) Fysiotherapie

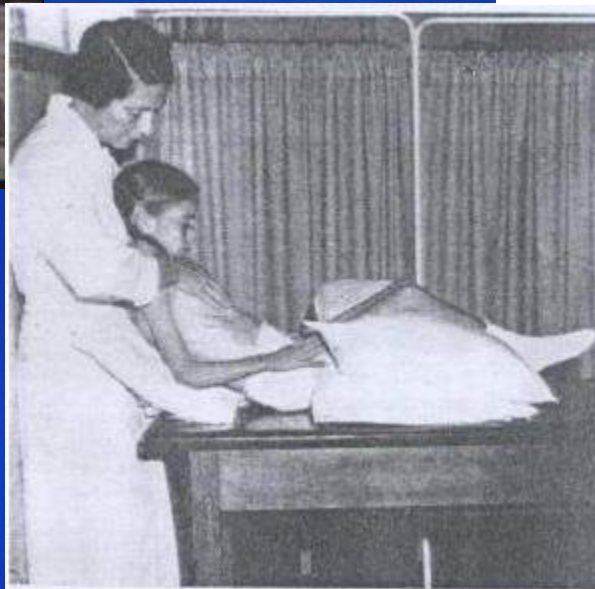
- By **1919** there was an increasing body of evidence to suggest that where there is "serious lung collapse and chest deformity following wounds or illness, breathing and physical exercises should, in certain cases, be given as accessories to medical and surgical treatment, if the best possible recovery is to be assured."
- Yet it wasn't until the **1950s**, when surgeries started to be a mainstay in hospitals (due to improved anesthetics), that any extensive studies were performed to determine the efficacy of CPT, according to Colleen M. Kigin in her **1981** article in *Physical Therapy* ".

Kigin, Colleen M, "[Chest Physical Therapy for the Postoperative or Traumatic Injury Patient](#)," *Physical Therapy*, 1981; 61; pages 1724-1736.

Conventional Chest Physical Therapy

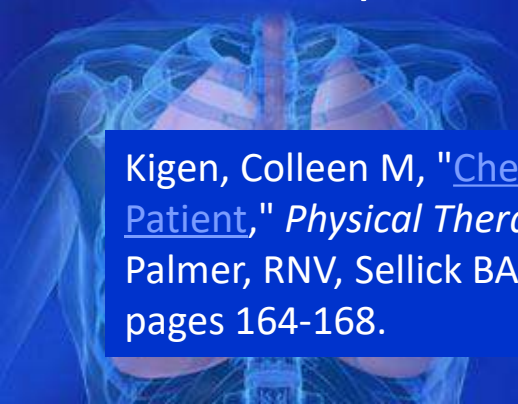


Chest percussor



Geschiedenis van de (long) Fysiotherapie

- Loius Pasteur first recognized atelectasis in **1908** after "temporary inhibition of muscular activity." In the 1930s studies showed a link between post operative respiratory distress and hypoxemia.
- In **1952** atelectasis was recognized by R.N.V. Palmer and BA Sellick as the most common cause of post operative complications.
- Palmer and Sellick described that the best results in treating PPCs are by using percussion, postural drainage, and treatments with isoprenaline.



Kigen, Colleen M, "[Chest Physical Therapy for the Postoperative or Traumatic Injury Patient](#)," *Physical Therapy*, 1981; 61; pages 1724-1736.

Palmer, RNV, Sellick BA, "The Prevention of Post Operative Pulmonary Atelectasis," *Lancet*, 1953, 1; pages 164-168.

Conclusion

- Until the 1960s the "gold standard" for preventing PPCs was chest physiotherapy.
- But there is little evidence to support the use of one airway clearance technique over another.
- More long-term, high-quality randomised controlled trials comparing airway clearance techniques are needed.



**Cochrane
Library**

Cochrane Database of Systematic Reviews

**Airway clearance techniques for cystic fibrosis: an overview of
Cochrane systematic reviews (Review)**

Wilson LM, Morrison L, Robinson KA

Success and change!?



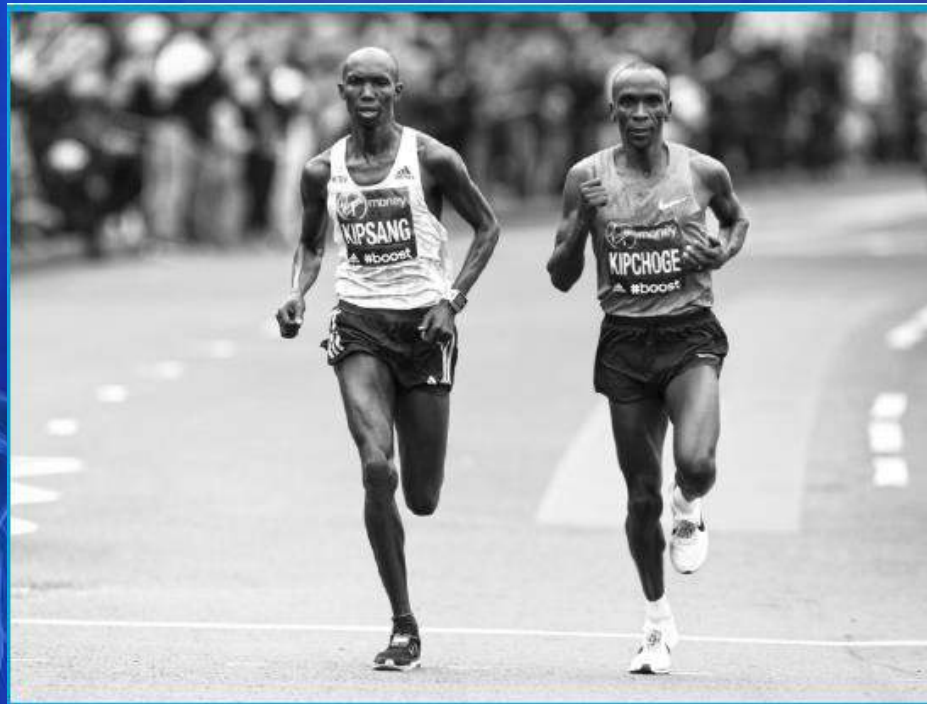
Progressively older and more comorbid population...

Vital Functioning

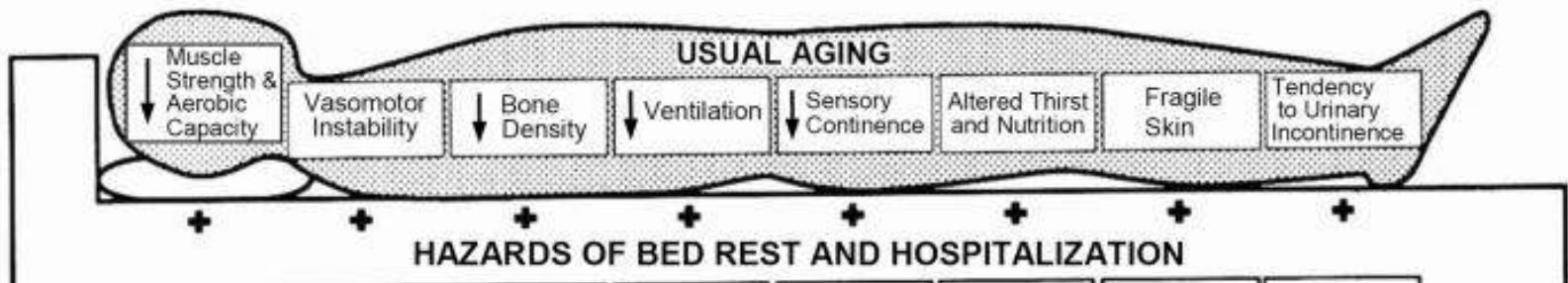


“Better-In-Better-Out”

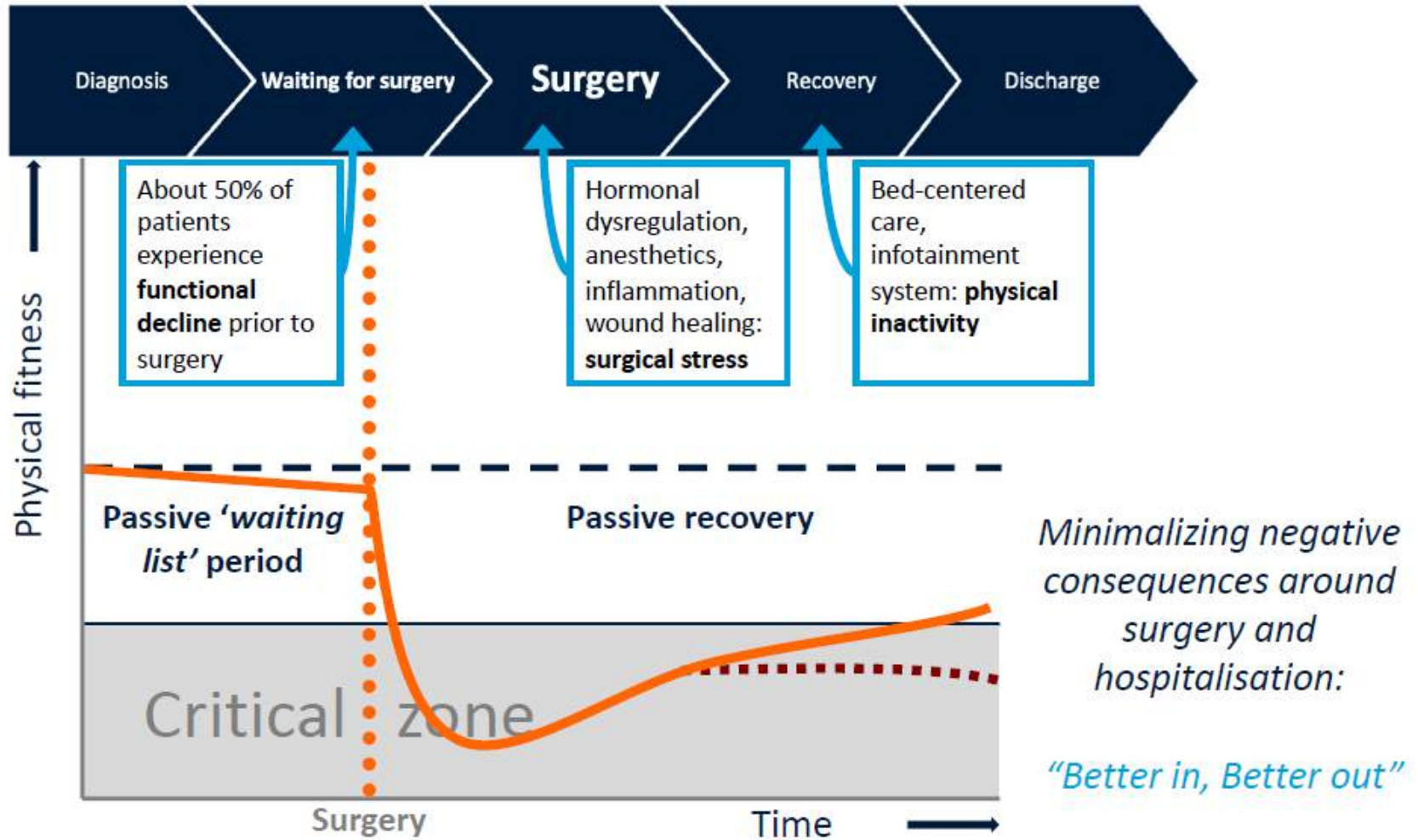
Major surgery is like running a marathon....
so be prepared!



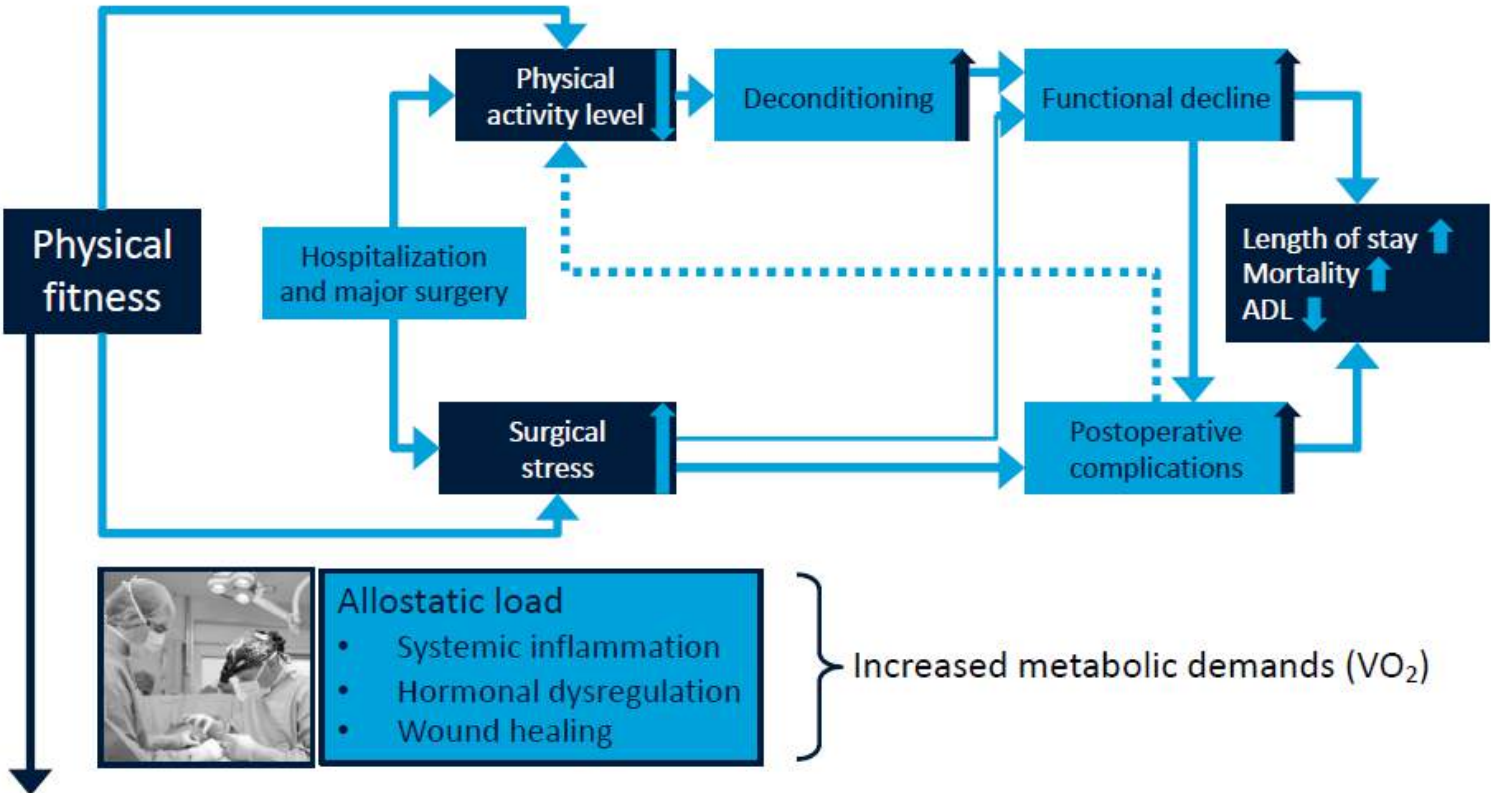
Hazards of bedrest and hospitalization



Reactive care path



Effects of Surgery and Hospitalization



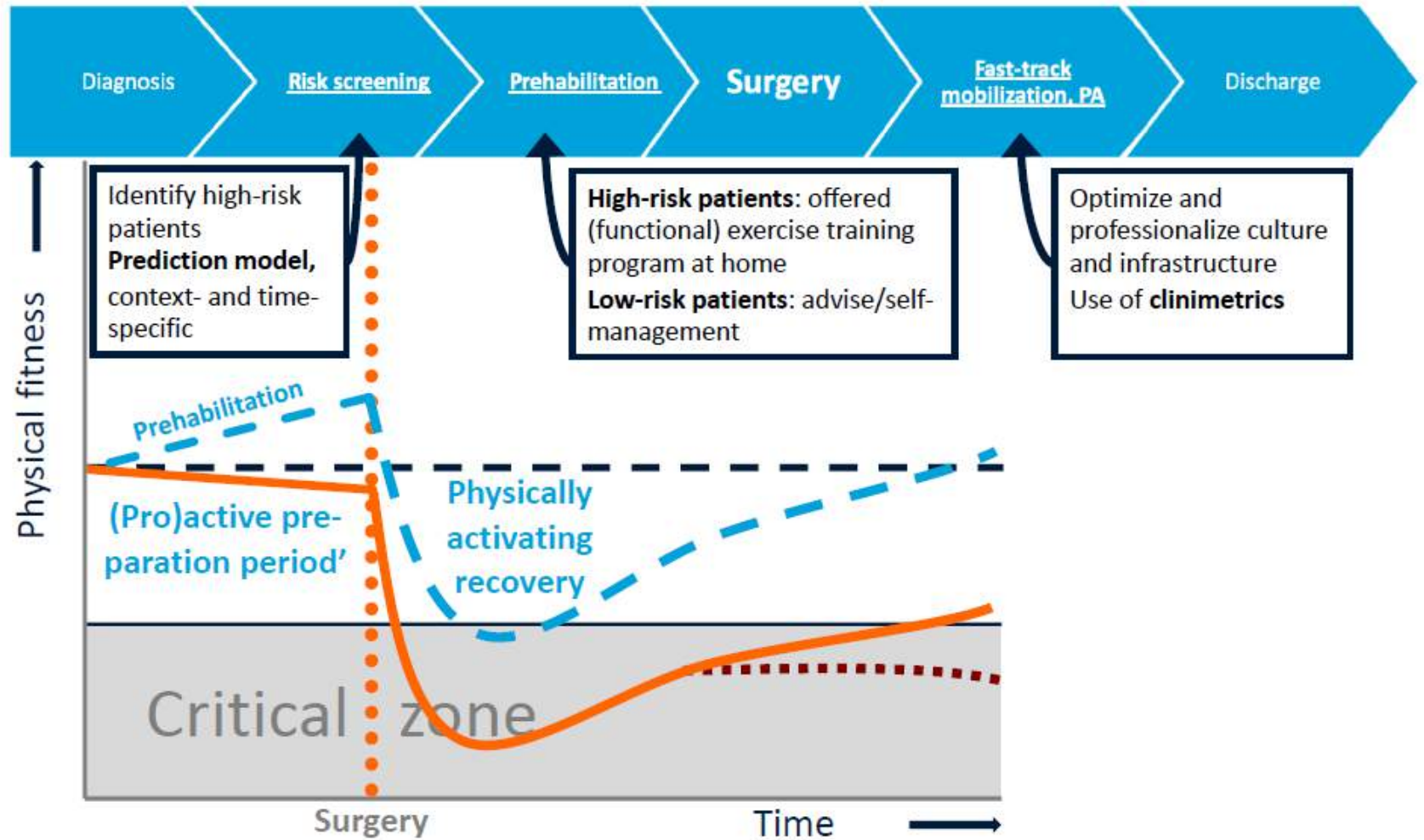
- Allostatic load**
- Systemic inflammation
 - Hormonal dysregulation
 - Wound healing

} Increased metabolic demands (VO₂)

Aerobic fitness, physiological reserve capacity

Desborough 2000; figure modified from Dronkers 2013

Proactive care path

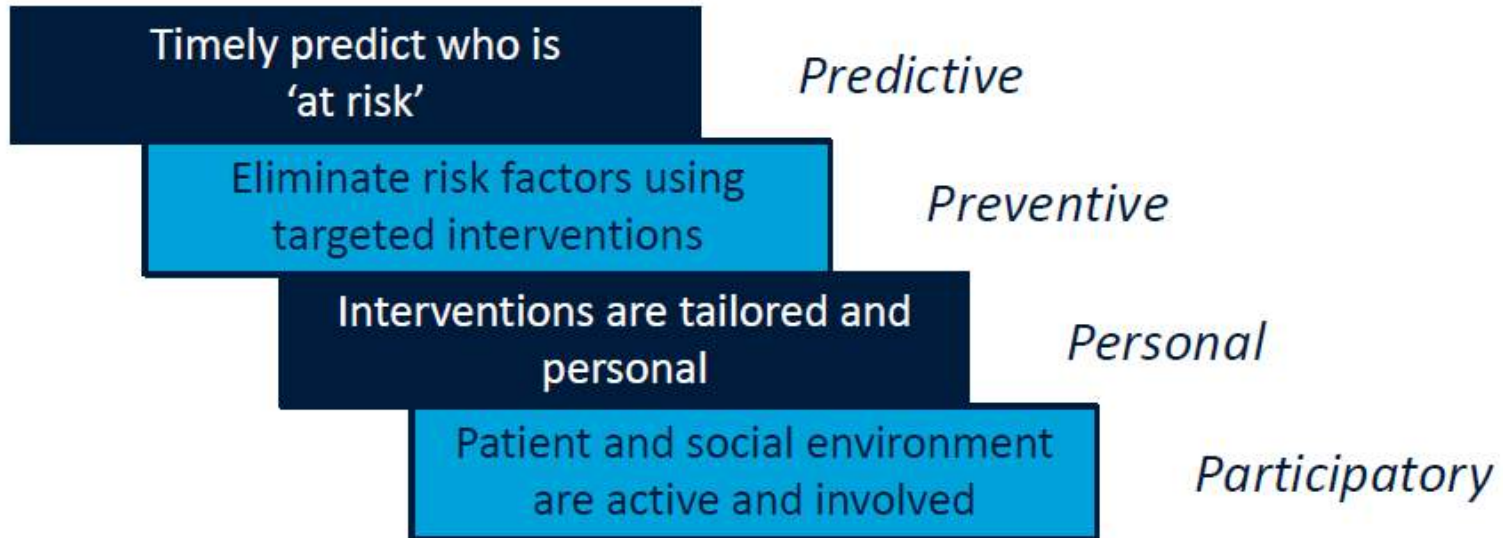


P4 perioperative physical therapy

“Better in, Better out”

P4Health

● PREDICT ● PREVENT ● PERSONALIZE ● PARTICIPATE



Hood 2010; Bongers et al. 2019

Prehabilitation

Ideally multimodal

B.C. Bongers et al. / European Journal of Surgical Oncology xxx (xxxx) xxx

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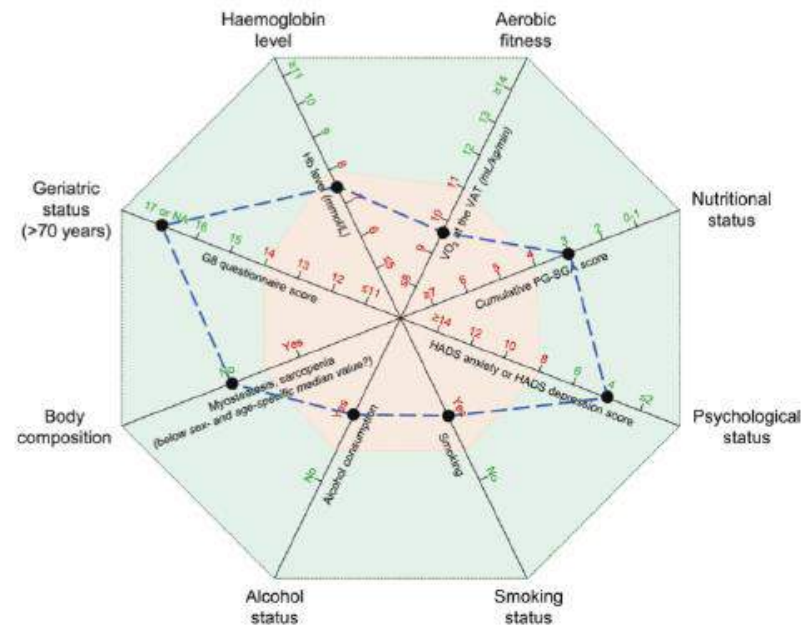


Fig. 3. An example of a comprehensive multidisciplinary preoperative risk assessment, of which the outcomes can subsequently be used to personalize prehabilitation. Abbreviations: G8 = geriatric 8; HADS = hospital anxiety and depression scale; Hb = haemoglobin; PG-SGA = patient-generated subjective global assessment; VAT = ventilatory anaerobic threshold; VO₂ = oxygen uptake.

Bongers et al. 2020

Perioperative prevention and care

“Better in, Better out” concept



Optimizing perioperative physical therapy care in major elective surgery to improve surgical outcome in high-risk patients: the Better in, Better out™ concept

Bart C. Bongers, PhD¹
 Jaap J. Dronkers, PT, PhD^{1,2}
 Erik H.J. Hulzebos, PT, PhD³
 Thomas J. Haegoboorn, PT, PhD⁴
 Prof. Wolfgang F. Buhre, MD, PhD⁵
 Prof. Nico L.U. van Meesteren, PT, PhD^{1,2}

1 Department of Epidemiology, Faculty of Health, Medicine and Life Sciences, Care and Public Health Research Center (CAPHRI), Maastricht University, Maastricht
2 Department of Physical Therapy, Institute Public Health, ZUM
3 University of Human Movement studies, Faculty of Health Care, University of Applied Sciences Utrecht, Utrecht
4 Child Development & Therapy Center, University Medical Center Utrecht, Utrecht
5 Radboud University medical center, Radboud Institute for Health Sciences, Nijmegen, Nijmegen
6 Department of Anesthesia and Pain Therapy, University Medical Center Groningen, Groningen
7 Toposcan Life Sciences & Health, Maastricht University, Maastricht

CONCLUSION
 DR. B.C. BONGERS, MSc, Maastricht University, Department of Epidemiology, CAPHRI, 6200 MD, 6200, Maastricht, The Netherlands
 Email: b.c.bongers@maastrichtuniversity.nl
 T: +31 43 387 21 26
 F: +31 43 387 21 27

Full Article [see supplementary content](#)
Conflict of interest none declared

Keywords high-risk patients, major elective surgery, physical therapy, physical functioning, postoperative outcome, postoperative care

- Optimal patient preparation **before major surgery** by high-quality tailored (physical therapy) care } *“Better in”*
- Optimal patient treatment **after major surgery** by high-quality tailored (physical therapy) care } *“Better out”*
 - At the right time
 - With the right volume and content
 - In the right context
 - For the right patients

Bongers et al. 2016

BiBo learning community

Jelmer Jager
Orthopedics (THP, TKP)
Thorax (Cardiac)



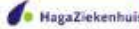
Anne Viester
Sigrid de Bruijn
Orthopedics (THP, TKP)



Dr. Steven van Galen
PhD student Jordi Elings
Orthopedics (THP)



Dr. Paulien van Kampen
Susan Hombergen
Orthopedics (THP, TKP)



Carry Bolmer
Oncology (CRC)



Eric Hoebink
Pjotr Goossens
Orthopedics (THP, TKP)



Dr. Gerrit Slooter
Dr. Goof Schep
PhD student Charlotte Molenaar
Oncology (CRC)



Prof. Nico van Meeteren
Dr. Bart Bongers
Dr. Aniek Heidens
PhD student Christel van Beijsterveld
PhD student Esther Janssen
Oncology (CRC, HPB)
Orthopedics (THP, TKP, LSF)



Prof. Joost Klaase
Dr. Carlijn Buis
Oncology (all)
Hepatic surgery



Richard Bimmel
Dr. Geert van der Sluis
Duncan Leistra
Oncology (CRC)
Orthopedics (THP, TKP)



Prof. Joost Klaase
PhD student Anneflour Berkel
Oncology (CRC)



Dr. Eric Hans Eddes
Siebrand Zoethout
Oncology (CRC)



Dr. Jaap Dronkers
Dr. Ellen Oosting
Orthopedic (TKP, THP)
Oncology (all)
Abdominal



Prof. Maryska Janssen-Heijnen
PhD student Ruud Franssen
PhD student Melissa Voorn
Oncology (CRC, lungs)



Prof. Lepsky
Orthopedics (THP, TKP)
Oncology (CRC)



Dr. Rydwik
Oncology (CRC)



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Oncology (HPB)



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**thank
you!**