EXPINKT™ Establishing exercise opportunities for cancer survivors

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expinkt™

exercise training
beyond breast cancer

EXPINKT™

- The Exercise Training Beyond Breast Cancer (EXPINKT™) programme was established:
  - To meet the specific needs of women, either in active treatment or who have completed treatment, and
  - To provide teaching and learning opportunities for fourth year students of Exercise Prescription

What we do

- Combination of:
  - Resistance exercise
  - Aerobic exercise

- Three levels
- Individualised
- Supervised
- Progressive
- Symptom-limited

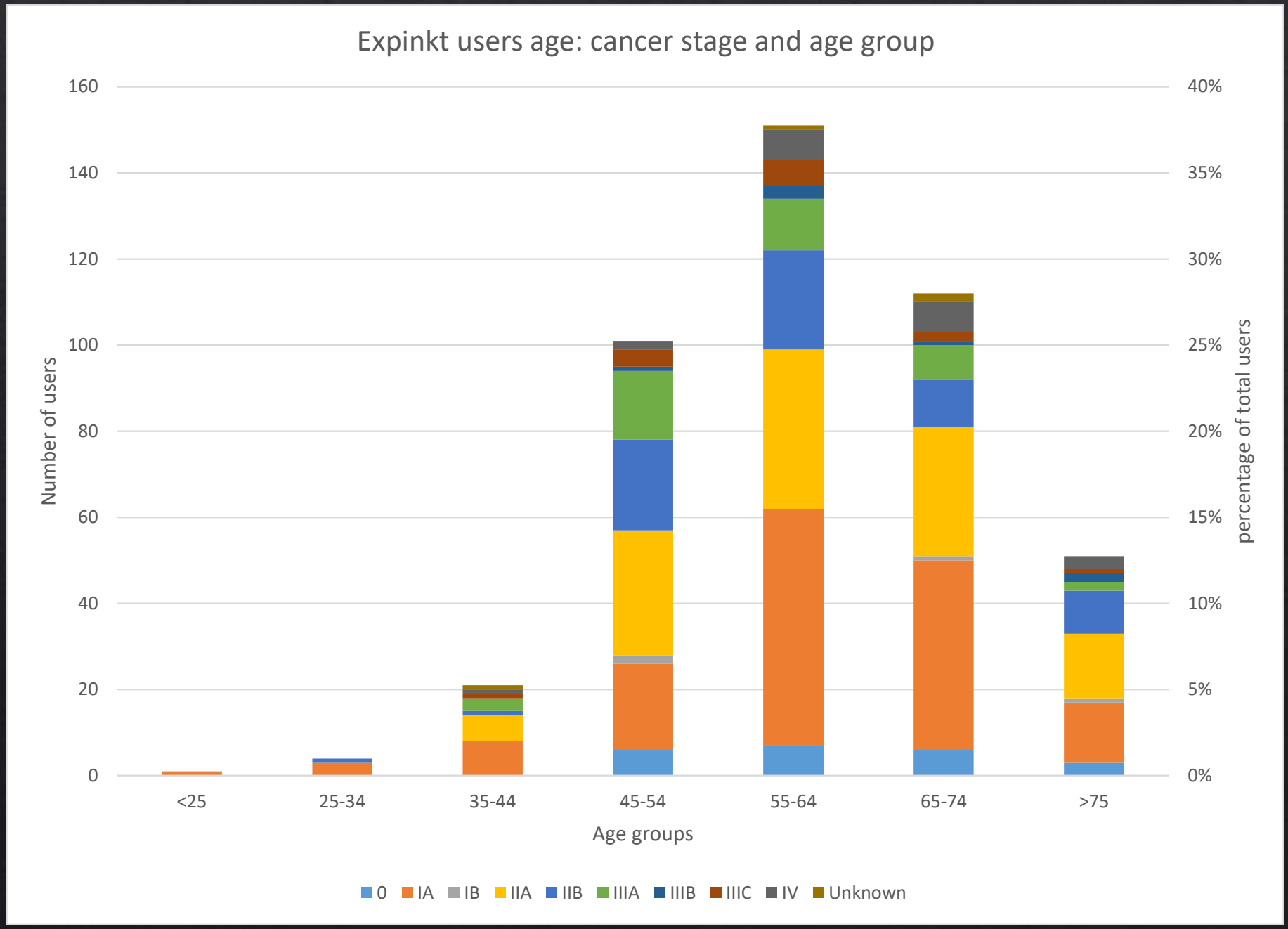
EXPINKT™ – The Process

- Referrals initiated at oncology consultation
- Some by self-referral – all referred back to Oncology
- Forms sent to each individual
- Follow up phone call
- Initial consultation
- First exercise session

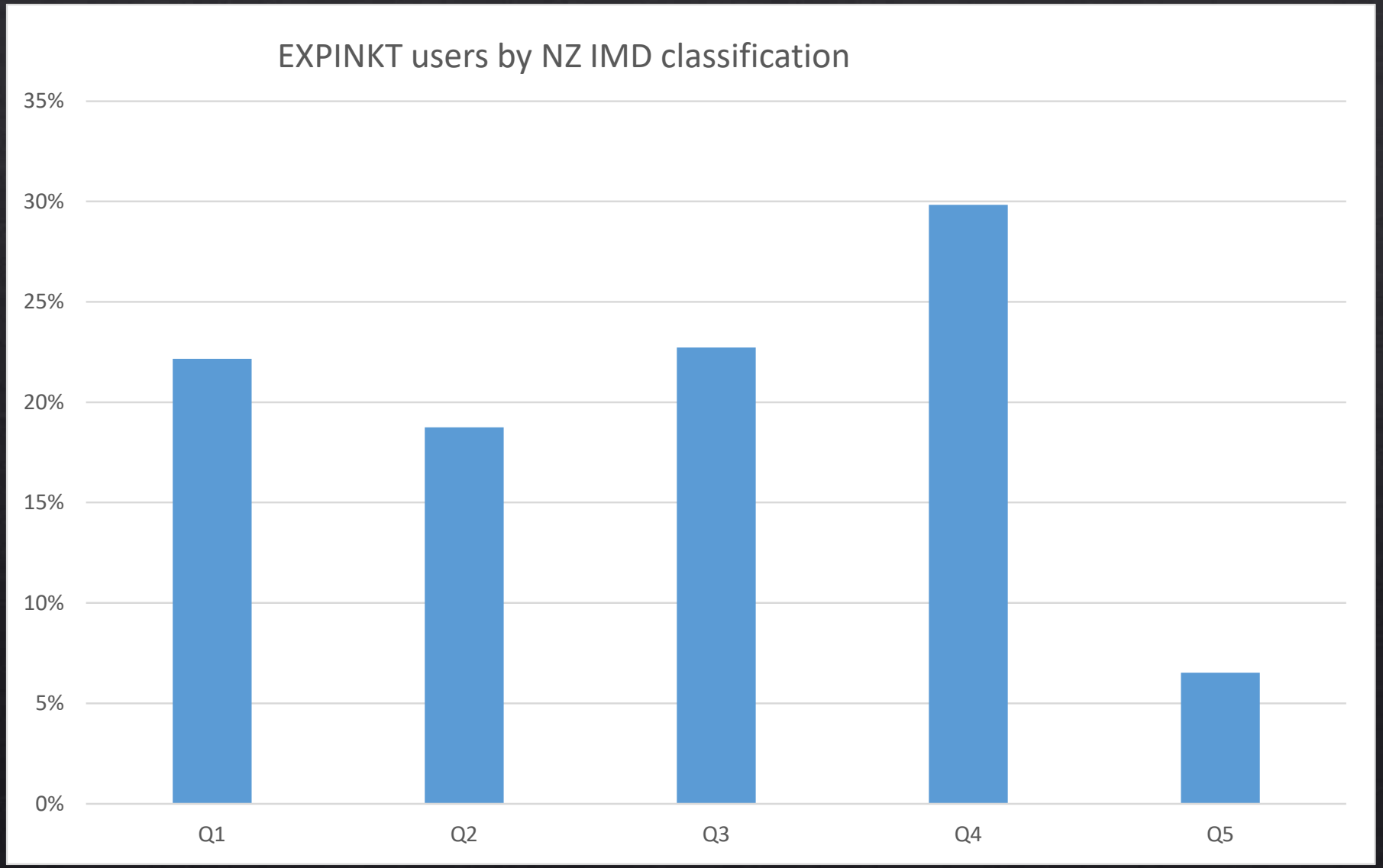
EXPINKT™– The Numbers

- Since September 2009:
  - 505 referrals – 450 breast cancer
  - Average age = 60.7 years (26-89y)
  - ~16% decline or fail to attend first appt
  - Majority reside within the Dunedin metropolitan area
- Currently 50-60 new referrals per year
- ~ 100-120 clients per week

EXPINKT stage and age data



Indices of Multiple Deprivation (2013)



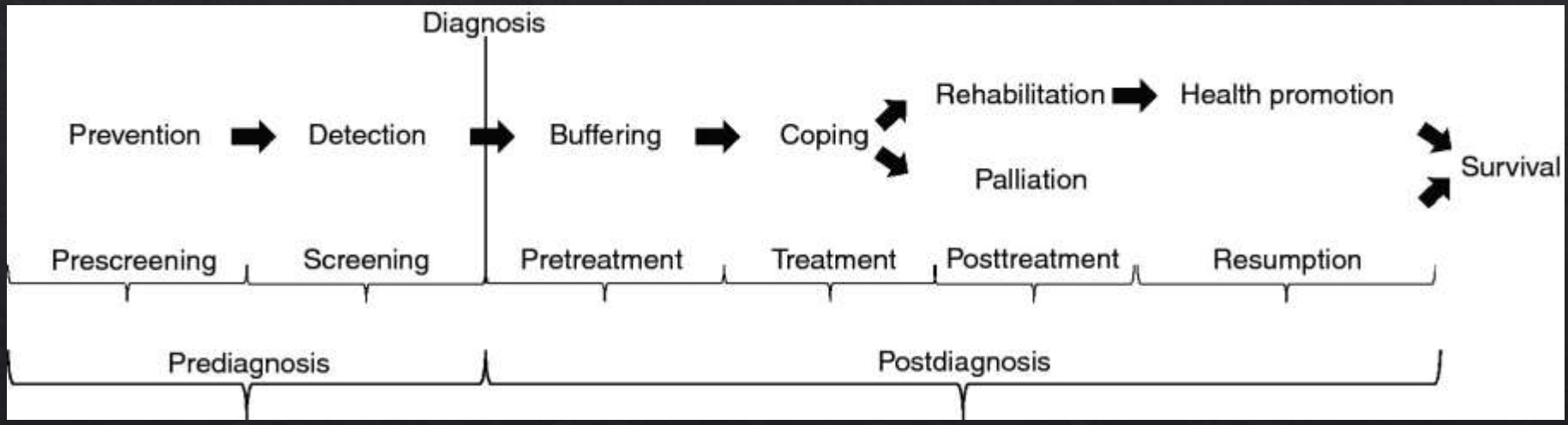
The Future

- Funding
  - Currently – Department and Alumni
  - Need more trainers, longer opening hours
- Other cancers
- Succession

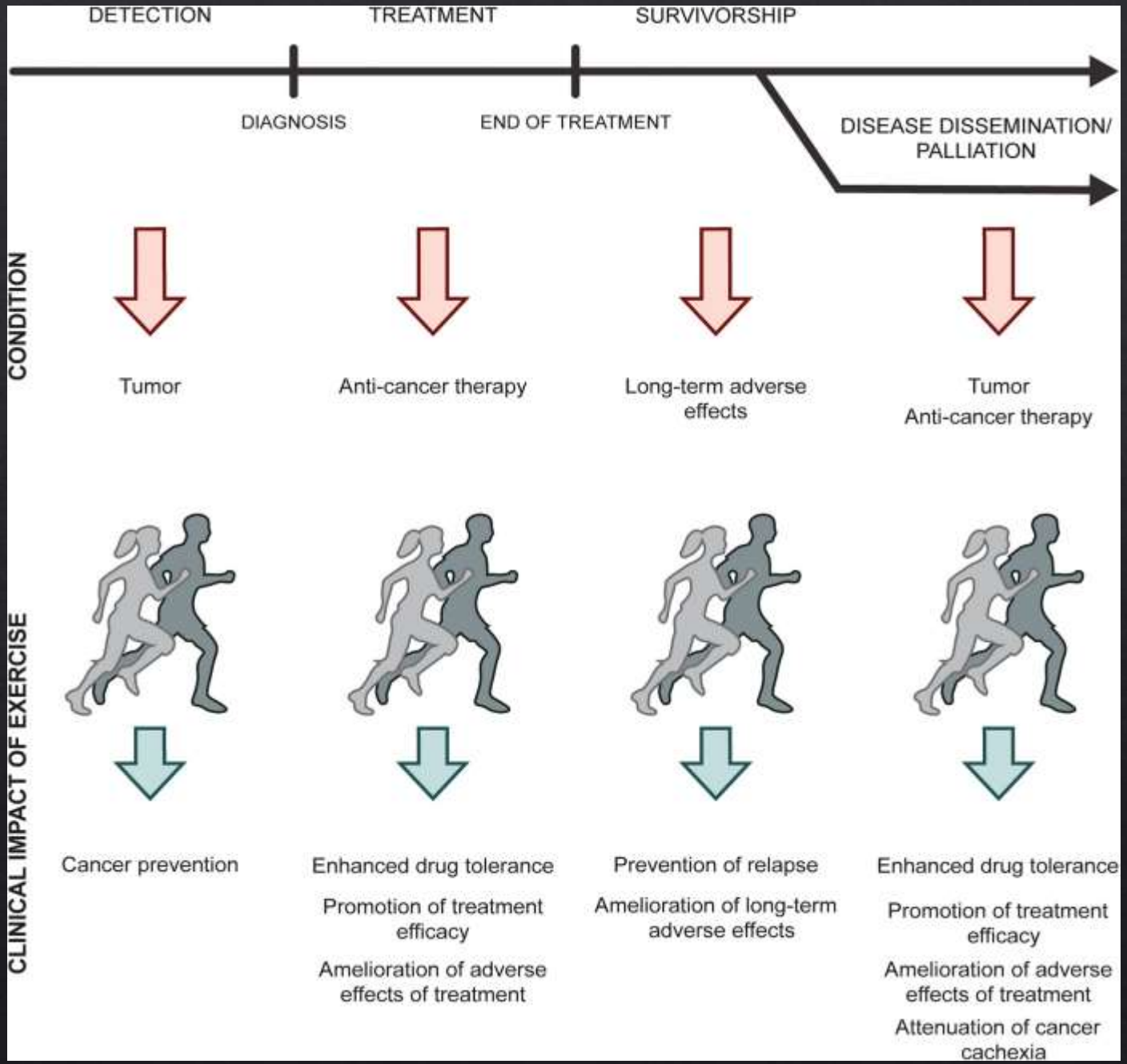
Breast Cancer

- More than 3,200 New Zealand women and ~25 men are diagnosed with breast cancer every year
- Five year survival rate is ~87%
- Many survivors do not survive ‘well’
- Survival has to be about more than quantity
- Exercise is a key factor in cancer rehabilitation and quality of life
- Exercise should be part of standard care – a call made by the Clinical Oncology Society of Australia

Exercise Across the Cancer Continuum



Justin C. Brown,[1] Kerri Winters-Stone,[2] Augustine Lee,[1] and Kathryn H. Schmitz[*1]*
Compr Physiol 2012 DOI: 10.1002/ cphy.



Hojman et al. (2018). Cell Metab. 27; 10-21

Exercise and Cancer Survival

- Research - 32 studies, 68,285 cancer survivors comparing those reporting little or no exercise to exercising survivors:
  - 28-44% decrease in risk of cancer-related mortality
  - 21-25% decrease in risk of cancer recurrence
  - 25-48% decrease in risk of all-cause mortality

Cormie et al. (2017). Epidemiologic Reviews. doi: 10.1093/epirev/mxx007

So are cancer survivors exercising?

- Despite these well documented dramatic effects, the great majority of cancer survivors do not participate in regular physical activity
- Only 25%-45% of cancer survivors meet exercise recommendations of 30 mins/day, 5 days /wk, following treatment completion
- Many cancer survivors decrease their physical activity after diagnosis
- Women with breast cancer exercise, on average, 2 hours less per week 1 year after diagnosis than pre-diagnosis.

Challenges in Exercise Programming

- Direct effects of treatment
  - Physical effects, psychological effects
- Indirect effects
  - Unseen changes in systems physiology
  - Cardiotoxicity most important
  - Aging effects of treatment

Exercise Challenges

- Surgery
  - Physical limitations
    - Wound healing
    - Aerobic capacity limited
    - Brain surgery – may affect speech, balance and memory
  - Psychological issues
    - Eg disfigurement – person is uncomfortable in public exercise situations

Exercise Challenges

- Chemotherapy
  - Physical/Physiological
    - Heart/lung problems – aerobic and strength exercise may be limited
    - Loss of sensation perception in the lower limbs/feet may affect balance, need exercises in a stable or supported situation
    - Infection risk. Facilities must be kept clean

Exercise Challenges

- Chemotherapy
  - Physical/Physiological
    - Fatigue is often present and for several months after treatment – can't do as much exercise or high intensity exercise
  - Psychological
    - Memory deficits – may forget exercises
    - Hair loss – wigs may cause over-heating during exercise

Exercise Challenges

- Radiotherapy
  - Physical/Physiological
    - Potential heart/lung involvement – no high intensity exercise
    - Lymphoedema – use exercises that actively promote muscle contraction
    - Skin issues
  - Psychological
    - Disfigurement – dependent on site irradiated
    - Thinking, learning and memory

Exercise Benefits

Active treatment

- ↑ physical abilities
- ↑ balance, reduce falls risk
- Maintain muscle and bone health
- ↓ CHD risk
- ↓ nausea, fatigue, anxiety and depression
- Maintain independence
- ↑ self-esteem and quality of life
- Assist weight control
- ↓ cognitive deficits

Post-treatment

- ↑ Aerobic fitness
- ↑ Muscle strength
- ↑ Functional capacity
- ↑ Bone health
- ↑ Quality of life
- ↑ Body image
- ↑ Self-esteem
- ↓ Lymphoedema risk/symptoms
- ↓ Fatigue, pain, depression and anxiety

How might exercise convey benefits across the continuum?

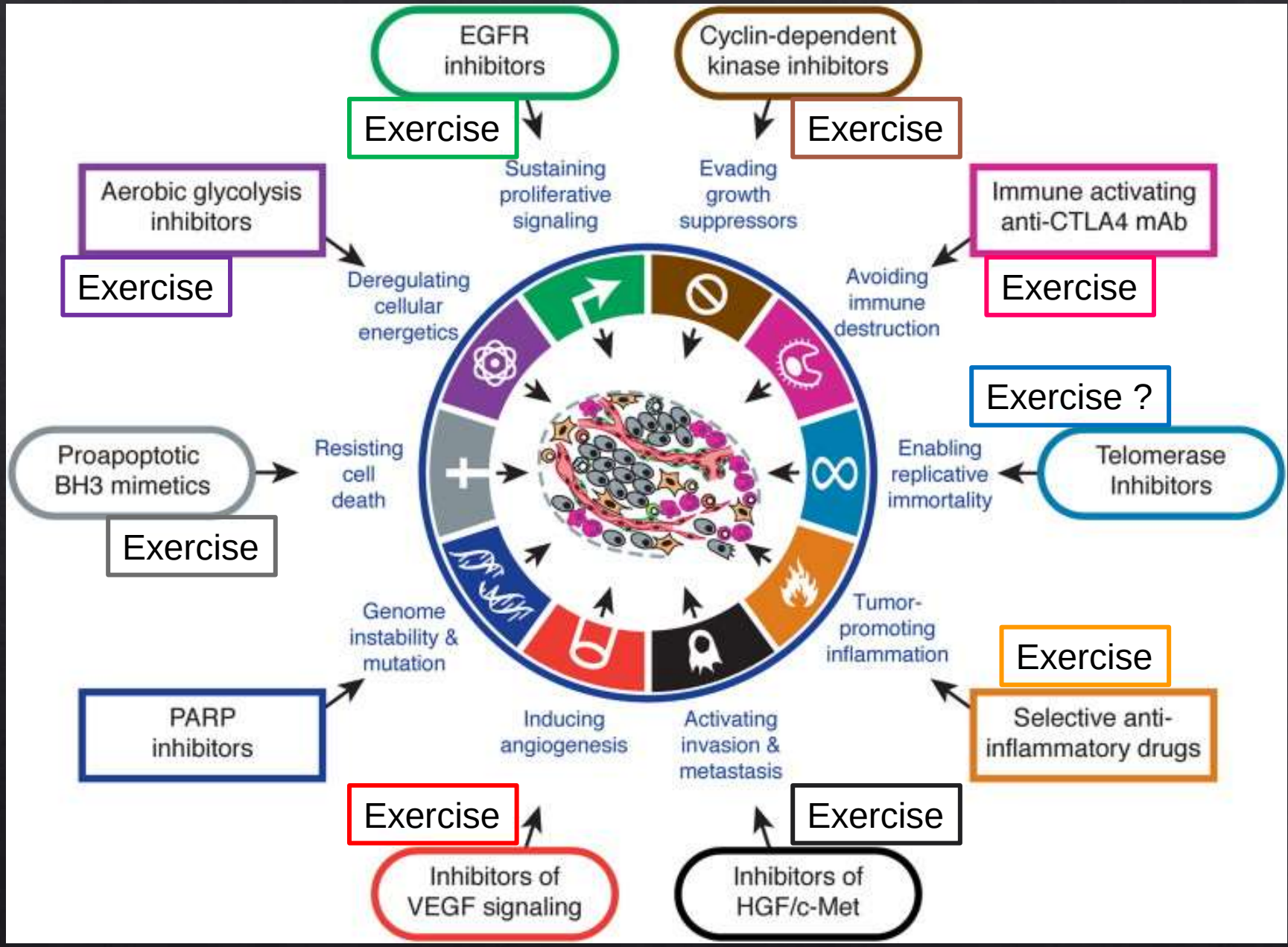
- Research focus shifted from the effects of exercise to HOW exercise can be beneficial

- Many pathways altered in cancer development, metabolism and progression

How might exercise convey benefits across the continuum?

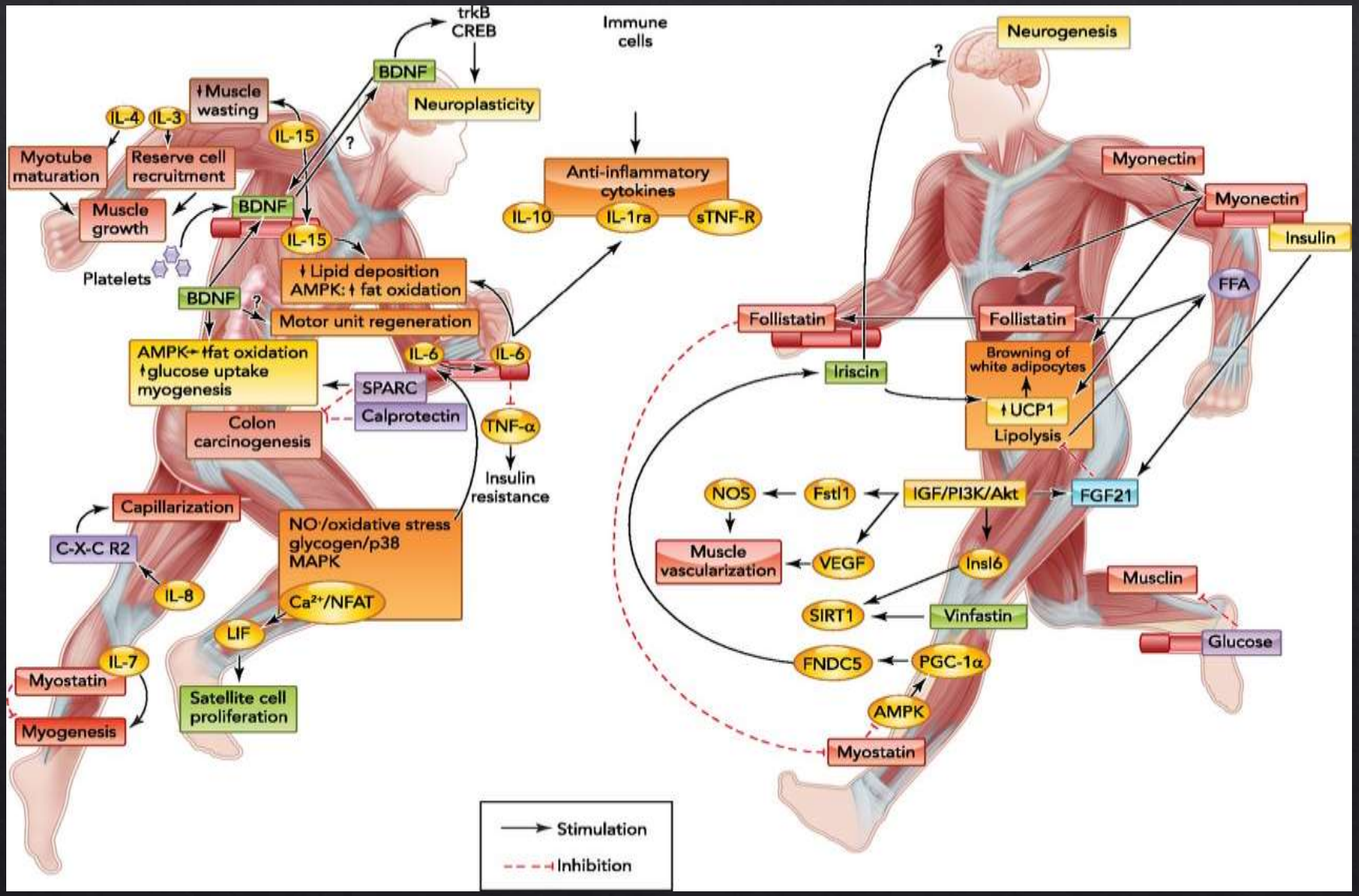
- Exercise is considered a ‘polypill’ in that it has local and systemic effects

- Exercise may affect all of the known ‘hallmarks of cancer’



Hanahan & Weinberg (2011) Cell 144, 646-74. Ruiz-Casado et al. (2017) Trends Cancer 3, 423-41

Summary of the main myokines, their putative effects, and the molecular signals/pathways involved



Carmen Fiuza-Luces et al. Physiology 2013;28:330-358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