



## A Novel Physical Activity Intervention Using Wii-Fit In Older Prostate Cancer Patients on Androgen Deprivation Therapy: A RCT

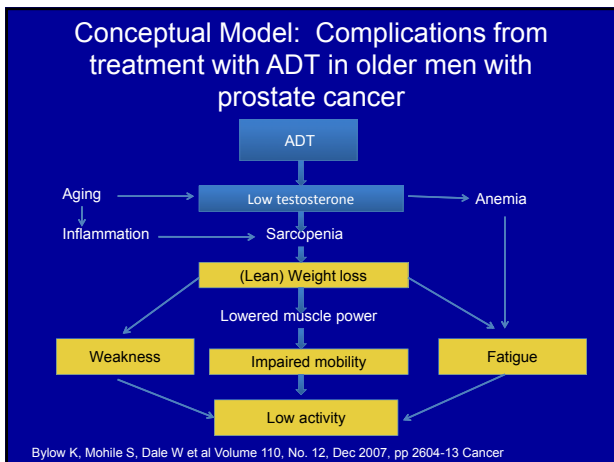
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## BACKGROUND

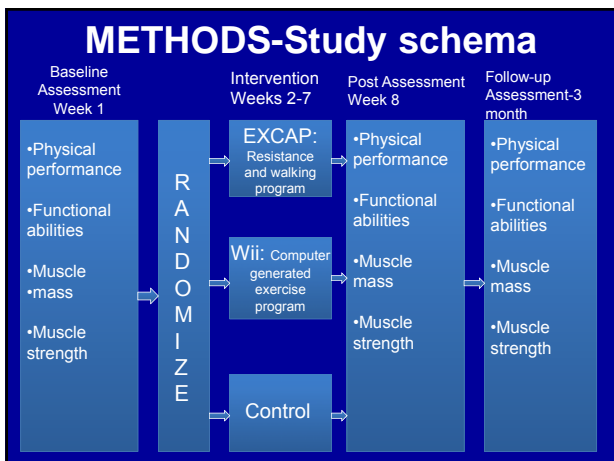
- Prostate cancer affects 1 in 6 men
- Older men disproportionately affected
- First line treatment for metastatic disease is Androgen Deprivation Therapy (ADT)
- ADT has many toxicities including:
  - Sarcopenia
  - Osteoporosis
  - Falls/Fractures

K Bylow, W Dale, S Mohile et al. Vol 77, No 4, April 2011, pp 934-940 Urology  
S Sajid, S Mohile, W Dale, Vol 38, No 2, April 2011, pp 309-325 Seminars in Oncology



## OBJECTIVE

- A pilot study testing the feasibility and efficacy of either a:
  1. tailored, multi-component exercise intervention of a home-based exercise program (EXCAP)
    - EXCAP: Daily walking
    - Wii: "Basic Run"
  2. home-based computer-generated exercise program for PC patients utilizing Nintendo's Wii fit technology (Wii)
    - EXCAP: Therapeutic bands
    - Wii: Upper and lower extremity strength exercises
- Components:
  1. Low to moderate intensity aerobic exercise: Increase number of steps by 5% per week
  2. Low to moderate intensity progressive resistance exercise



## METHODS – Inclusion Criteria

1. Men 70+
2. Recurrent, asymptomatic PC
3. Received primary therapy for PC (surgery, XRT)
4. On ADT for ≥ 3 months (Mean time = 64.8 ± 63 mo)
5. Clinical response to ADT
  - declining or stable PSA
  - no progression of clinical symptoms
  - asymptomatic metastatic disease
6. Able to walk at least 4m without assistive device

## OUTCOMES

- **Primary outcome:** Change in Short Physical Performance Battery (SPPB; 0-12,  $\leq 9$  is impaired)
  - Gait speed (0 - 4)
  - Chair stands (0 - 4)
  - Balance (0 - 4)
- **Secondary outcomes:** Change in scores:
  - Lean muscle mass (DEXA)
  - Maximum chest press repetitions
  - Handgrip strength on dynamometer
  - Body Mass Index (BMI)

Vasunilashorn S, Guralnik JM et al. Vol 64, No 2, pp 223-9, Feb 2009. J Gerontol A Biol Sci Med Sci

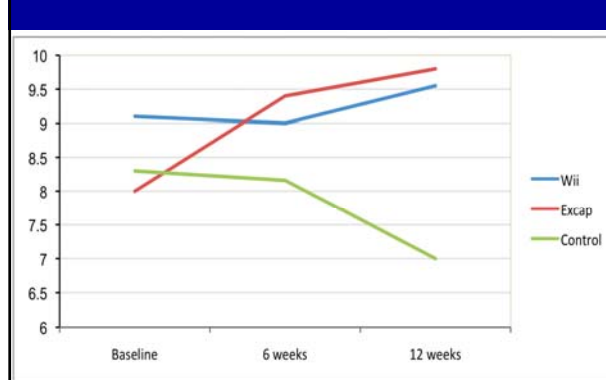
## Patient Characteristics & Baseline Measures

	Wii (n=10)	EXCAP (n=8)	Control (n=9)
<b>Patient Characteristics</b>			
Age (years)	78.5	78.1	75.4
Total body weight (kg)	80.4	92.9	99.5
BMI (kg/m <sup>2</sup> )	22.6	30.7	32.4
Fat (% adiposity)	29.8	35.1	36.4
<b>Baseline Outcomes</b>			
SPPB (0-12)	9.1	8.0	8.3
# of steps/day	2,941	2,384	2,680
Lean muscle mass (kg)	49.1	55.7	62.2
Chest press reps max (kg)	65.5	69.1	69.0
Handgrip strength (kg)	28.1	32.3	37.5

## Change in scores and ANCOVA, 6 & 12 weeks

OUTCOMES	6 weeks Mean change in score (n, SD)			6 weeks ANCOVA on change in scores
	Wii	EXCAP	Control	
SPPB (5-12)	0.78, 1.82	1.40, 1.82	0.20, 1.92	0.57
Lean muscle mass (kg)	-0.93, 0.53	1.03, 1.39	-0.93, 0.89	0.02
No of steps/day	973, 1698	723, 298	-151, 410	0.38
Chest press rep max (kg)	0.42, 13.70	1.75, 9.95	-2.50, 10.90	0.89
Handgrip strength (kg)	1.00, 1.67	2.25, 3.86	1.30, 8.10	0.89
OUTCOMES	12 weeks Mean change in score (n, SD)			12 weeks ANCOVA on change in scores
	Wii	EXCAP	Control	
SPPB (4-12)	0.22, 1.56	1.00, 0.71	0.67, 2.25	0.69
Lean muscle mass (kg)	-0.14, 1.08	0.68, 1.25	0.84, 2.06	0.65
No of steps/day	1200, 1537	2919, 4079	224.60, 1284	0.28
Chest press rep max (kg)	5.06, 8.10	3.30, 4.10	0.86, 5.67	0.46
Handgrip strength (kg)	1.33, 5.61	2.17, 3.06	0.71, 2.98	0.83

## SPPB score over time



## Patient perspective

- Wii: Participants stated that Wii "makes exercise fun". Several Wii participants requested to keep their Wii at study end
- EXCAP: Patients in EXCAP arm commented that "the exercise was great, but bands became a chore"
- Participant drop-out rate
  - Wii: 1
  - EXCAP: 3
  - Control: 3

## CONCLUSIONS

1. Exercise interventions were feasible and safe in this patient population.
  - Patients participated as noted by increased steps
  - There were no adverse events noted
2. Exercise interventions showed improved SPPB scores vs. UC, but the improvement was not statistically significant.
3. Participants in the Wii arm had the lowest drop-out rate and most positive patient reports.

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