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Dunedin

The History and Prescription of Exercise - Concurrent Workshop Repeated

Saturday, 17 August 2013

Start 8:30am

Start 9:35am

Duration: 55mins

Duration: 55mins

Van Gogh

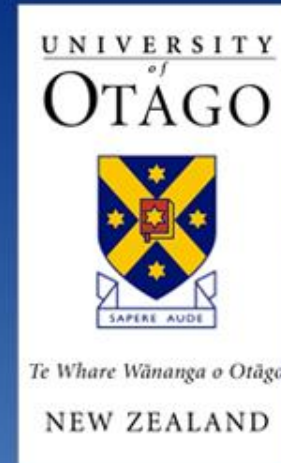
Van Gogh



South GP CME 2013

General Practice Conference & Medical Exhibition

15-18 August | Edgar Centre | Dunedin



The History and Prescription of Exercise

Dr Hamish Osborne

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Outline

Outline the benefits of physical activity (PA) on

physical health

mental health

Then

how to safely prescribe PA to your patients

**Ask your doctor or nurse about a Green Prescription.
Sometimes the best medicine is a dose of physical activity.**



Definition

Moderate/High levels of CRF achieved by performing

– 30min walk 5x week

- Strength
- Balance
- Flexibility
- Higher Intensity
- Doubling up is better

More than 2 hours TV/day - BAD

People with mental illness die early

- 10 to 15 years earlier

Literature on PA, anxiety and depression

Exercise vs 'no treatment' - standard mean difference (SMD) -0.67 (95%CI -0.9 to -0.43)

Exercise vs psychological therapy – no difference (SMD 0.17 (-0.52 to 0.18))

Exercise vs other treatments – superior to bright light therapy

Exercise vs antidepressants – SMD -0.02 (-0.29 to 0.24)

In those over 60 it improves most scores of sleep quality

PA prevents depression and anxiety

- Physical Activity Guidelines Advisory Committee 2008
 - physical activity can protect against feelings of distress,
 - enhance psychological well-being,
 - protect against symptoms of anxiety and development of anxiety disorders,
 - protect against depressive symptoms and development of major depressive disorder,
 - delay the effects of dementia and the cognitive decline associated with aging.

Physical Activity (PA) is very good for physical health

- In people who regularly participate in PA it prevents:
 - 50% Strokes
 - 50% breast cancer¹
 - 30% colon cancer²
 - 13% prostate cancer
- PA is as good as chemo for colon cancer and you can do both



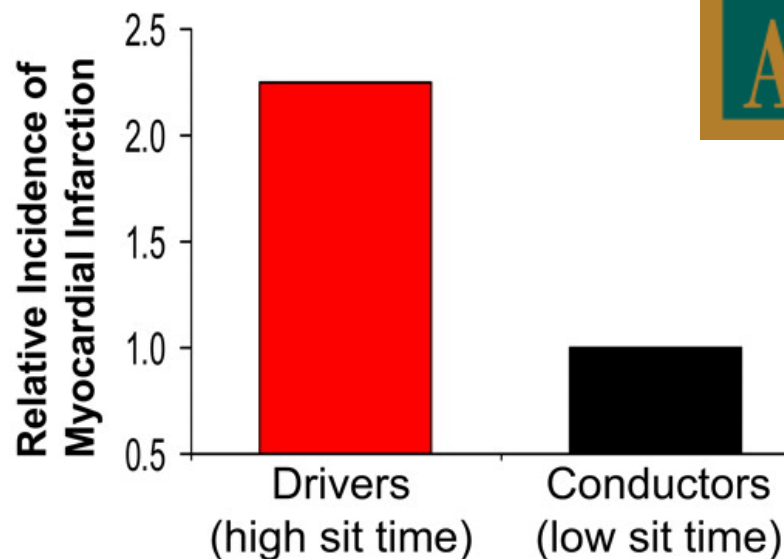
**1953 – Bus Drivers
2x as likely to
have MI**

**Same thing in
postal workers**

**16882 civil
servants cf 2
controls**

- half MI rate

A



Overlapping

- Knee Arthritis (47% less pain)
- Dementia¹ (37-50% lower rates)
- Diabetes (58% less)
- Hip fractures (41% fewer)
- Anxiety
- Depression



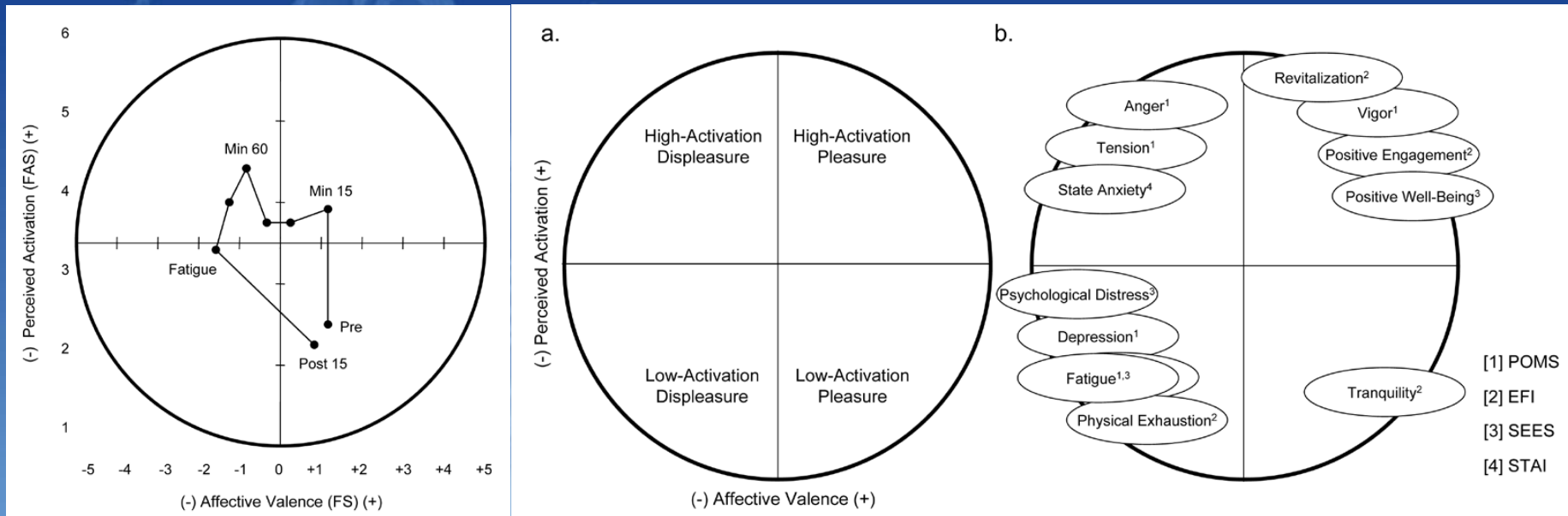
Definition of Physical Activity for health

- Not lycra
- Not sweat!
- Pass the 'talk test'

The Paradox

- (a) exercise makes most people feel better
- and
- (b) most people are physically inactive or inadequately active.

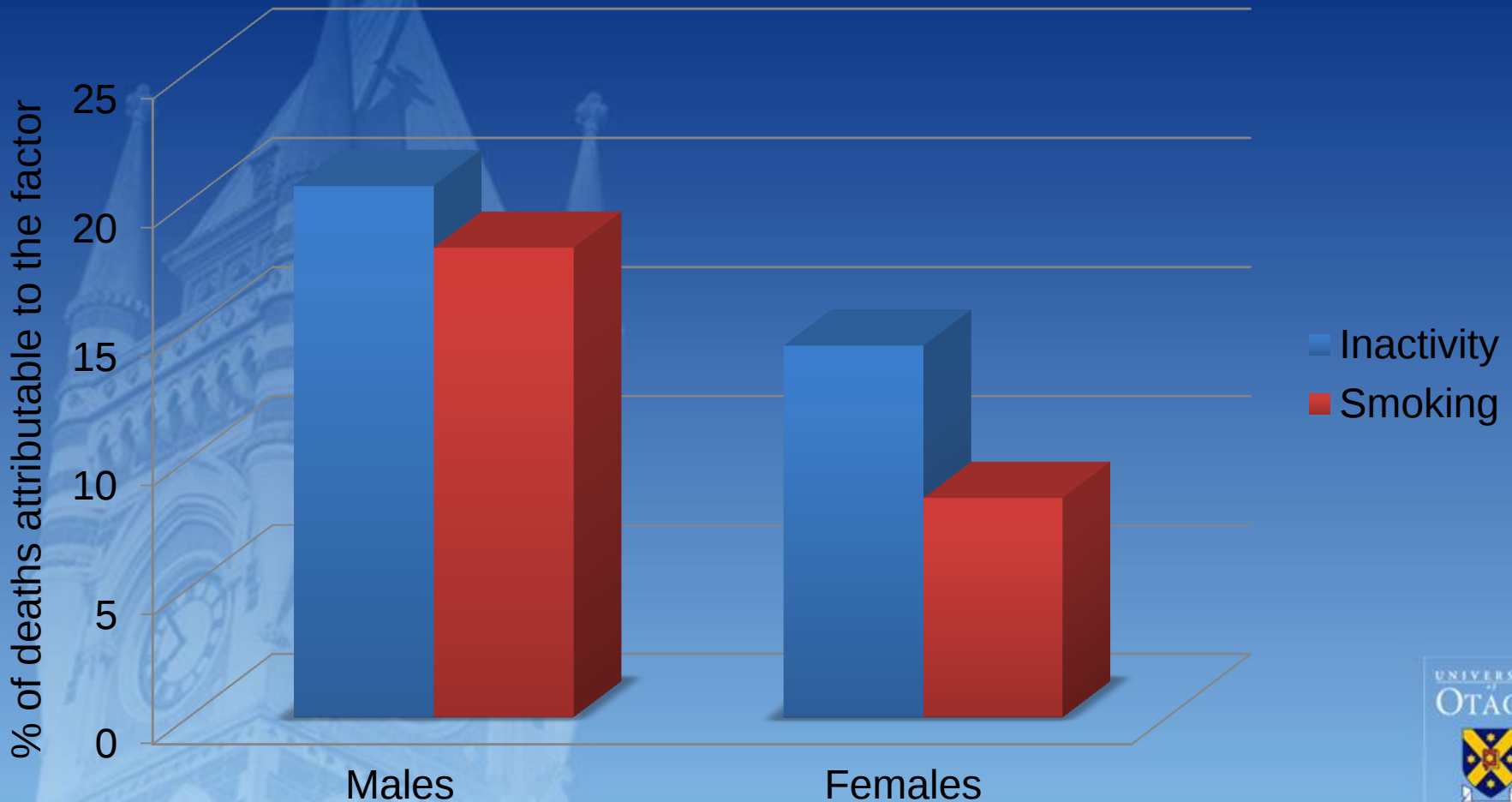
High levels of exercise reduce mental health scores during it



Lay people can do it

- Seventeen studies involving 7442 people
- Wide variety of conditions, exercise programs and outcomes
- Modest, short-term improvements in patients' confidence to manage their condition and perceptions of their own health.
- They also increased how often people took aerobic exercise.
- Small improvements in pain, disability, fatigue and depression
- No one died!!

Smoke - its safer than watching TV!



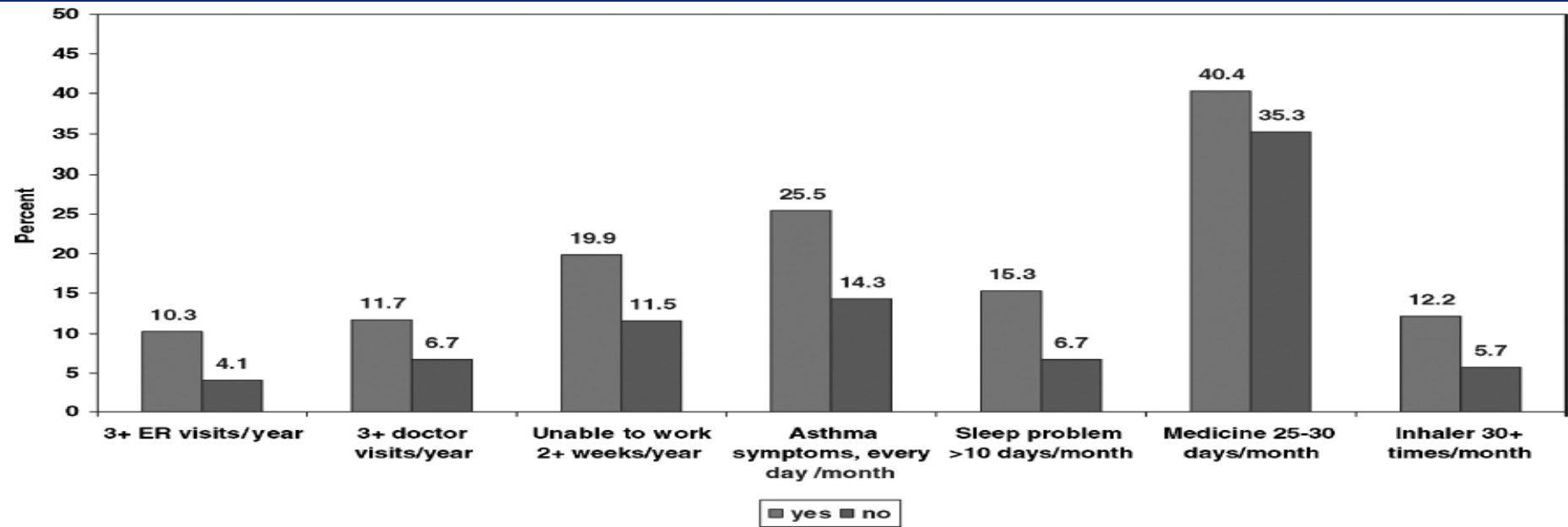


FIGURE 2.—Asthma severity by physical inactivity status.

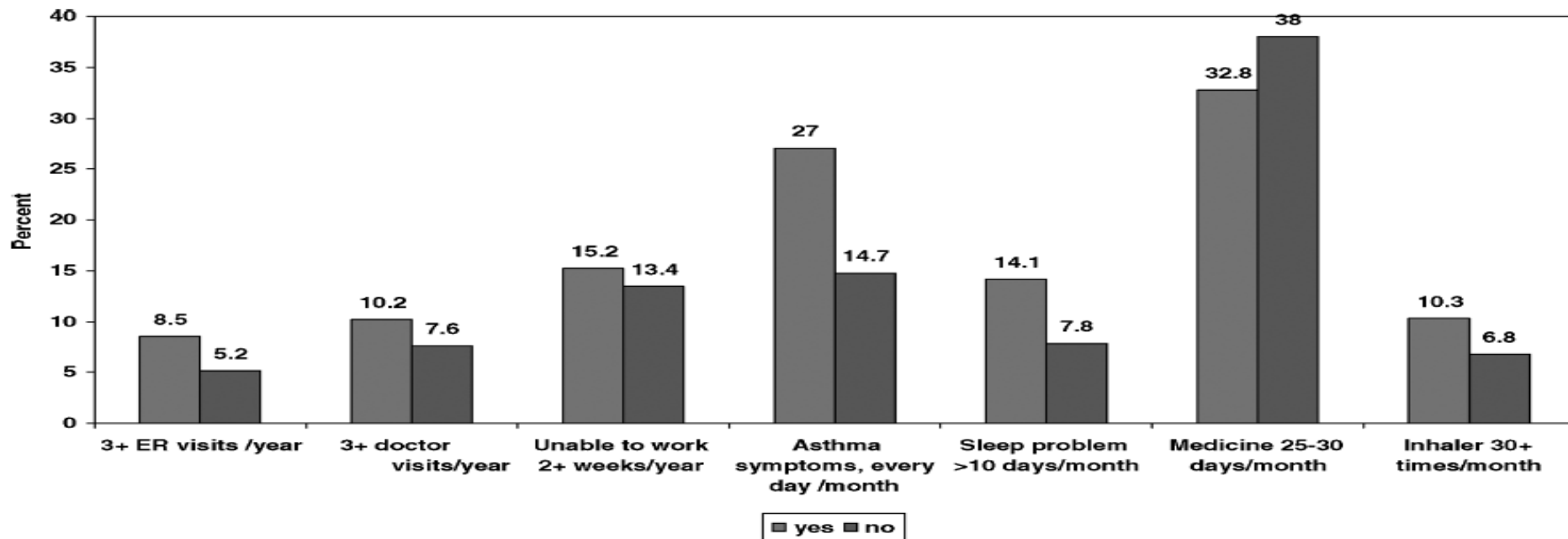


FIGURE 1.—Asthma severity by smoking status.

So there is a difference between...

- Regular physical activity
- and
- Physical inactivity

Persistence Hunting



Man vs Horse Race



NY Marathon

- From age 19 get faster
- Peak running speed 27
- Then times start declining till end up running at speed of 19 year old.
- How fast is that decline?

67



Am Cancer Soc	Mayo Clinic	Breast Cancer .org	CDC
Gender	Gender	Gender	Age
Age	Age	Age	Menstrual Hx
Genetic	Past Hx	FHx	Menopause
FHx	FHx	Genetics	Children
Past Hx	Genetic	Past Hx	No Children
Race	Irradiation	Irradiation	Not Breastfeeding
Dense Tissue	Obesity	Other Breast Cond.	Past Hx
Other Breast Cond.	Periods	Race	FHx
Periods	Menopause	Obesity	Irradiation
Irradiation	Children	Pregnancy	Obesity
DES	HRT	Breastfeeding	HRT
Children	Alcohol	Menstrual Hx	Genetic
OCP		HRT	Alcohol
HRT		Alcohol	Physical Activity
Breast Feeding		Dense Tissue	
Alcohol		Physical Activity	
Obesity			
Physical Activity			

Tamoxifen – Prevention

- Used in high risk
 - >35 and other risks meaning $>1.67\%$ Breast Ca 5yr

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	Placebo	Tamoxifen
• Breast Ca	6.5	3.6

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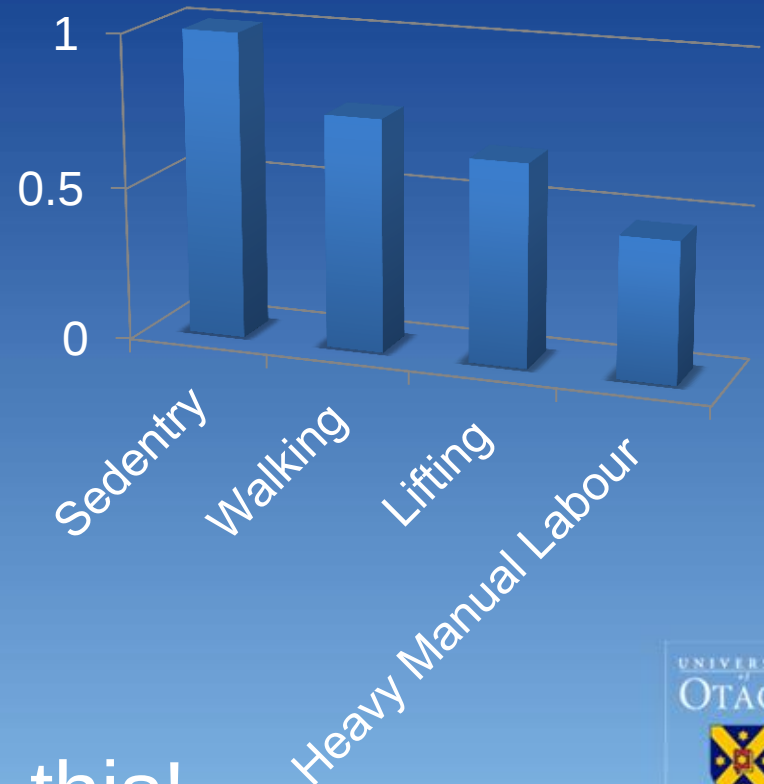
	Placebo	Tamoxifen
• Breast Ca	6.5	3.6
• Endo Ca	0.9	2.3
• PE	0.3	0.8
• CVA	1.0	1.4
• Total Bad things	8.1	8.7

Breast Cancer Prevention

Leisure Time



At work



There are no drugs that do this!

Thune I, Brenn T, Lund E, and Gaard M. Physical Activity and the Risk of Breast Cancer. *New England Journal of Medicine* 336: 1269-1275, 1997.

Breast Cancer doesn't discriminate

- 2008 review of PA parameters and breast cancer risk showed that the greatest risk reductions were for recreational PA (20% risk reduction).
- Activity related to
 - occupation (14%),
 - transportation (14%),
 - living (14%)

Tamoxifen – treatment effect

- About 75% breast cancers are ER +ve
- 5 years of treatment in ER +ve early disease
 - 61% (Tamoxifen) vs 51% (Placebo) 10 year survival
- Not clear that it works in ER-ve early disease
- Late cancer only helps ER+ve
- \$108M per annum

Herceptin – treatment effect

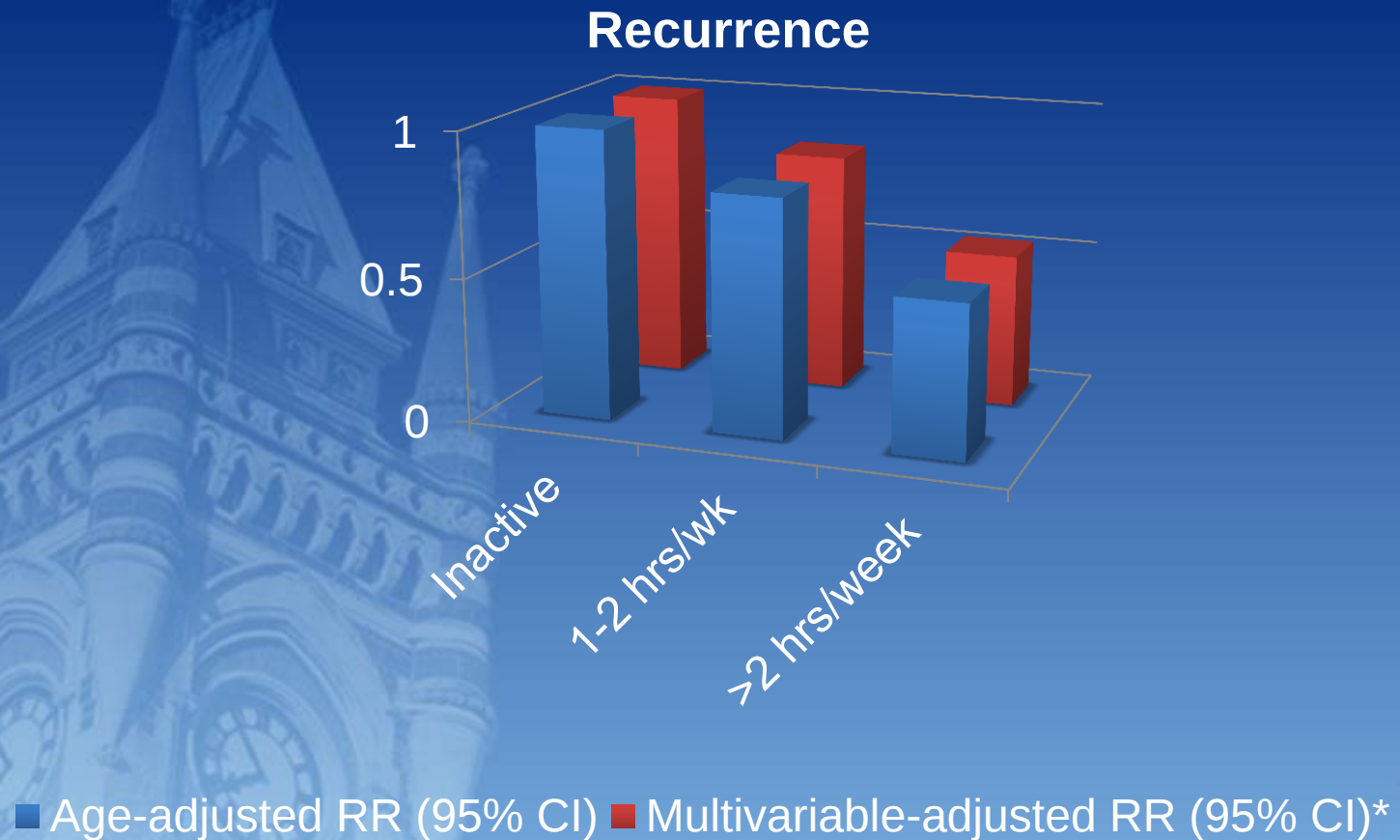
- About 1 in 5 breast cancers are HER2 +ve
- 70% of HER2 +ve tumours don't respond
- 9% relapse vs 17%
 - However 5/6 wouldn't have relapsed
 - 1/10 relapsed anyway
- For each life saved 1 of every 25 women treated die of heart disease
- \$35M per annum

Exercise – Treatment effect



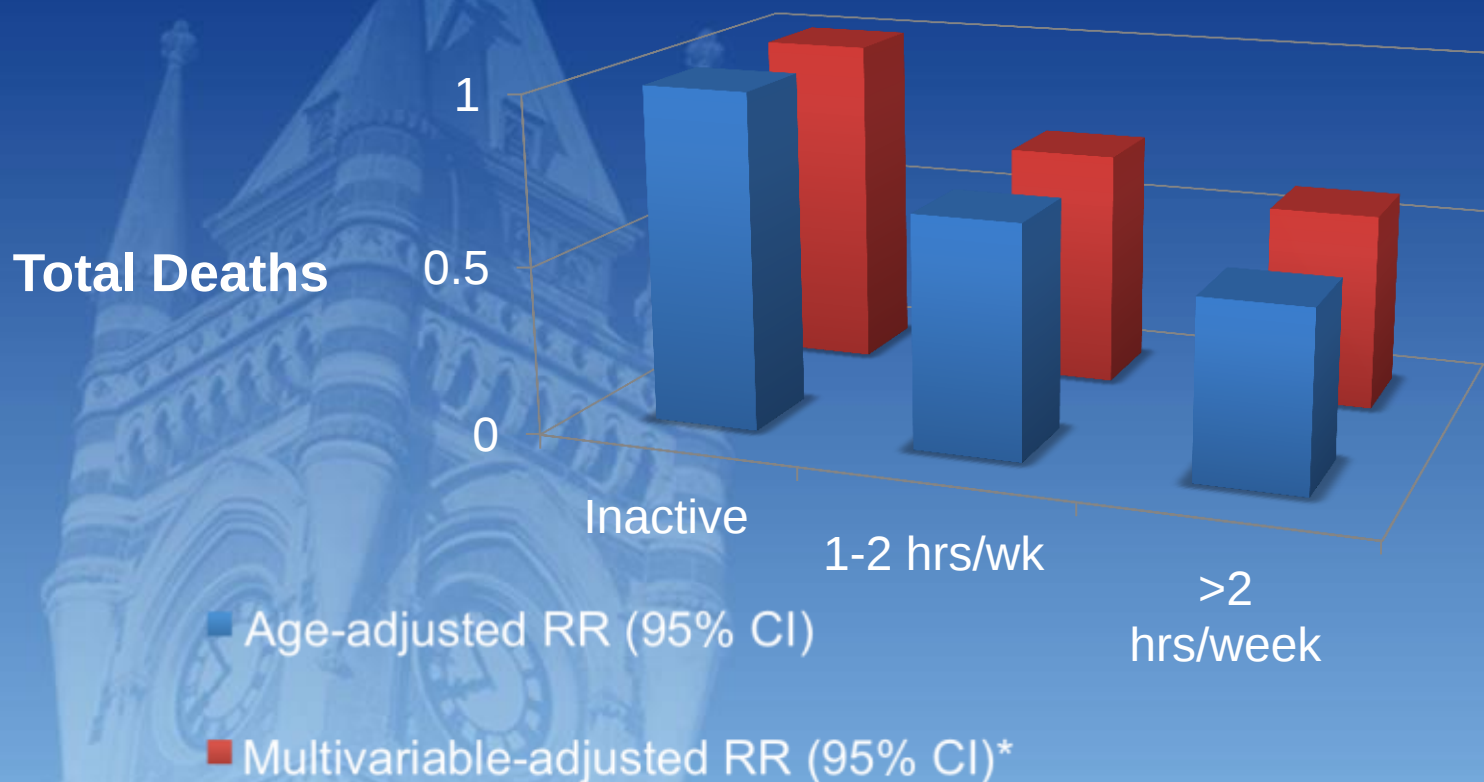
Holmes MD, et al. Physical Activity and Survival After Breast Cancer Diagnosis.
JAMA: The Journal of the American Medical Association 293: 2479-2486, 2005.

I don't want it to come back



Holmes MD, et al. Physical Activity and Survival After Breast Cancer Diagnosis.
JAMA: The Journal of the American Medical Association 293: 2479-2486, 2005.

So treatment worked what now?



Holmes MD, et al. Physical Activity and Survival After Breast Cancer Diagnosis.
JAMA: The Journal of the American Medical Association 293: 2479-2486, 2005.

PA and BMI

Breast Cancer risk reduction from PA

25% reduced from PA if BMI 22-25 kg/m²

20% reduced from PA if BMI <25-30 kg/m²

No protection from PA if BMI > 30 kg/m²

Obesity

- 9.9kg weight gain post menopause = 18% increase in risk

C- Peptide – HEAL Study

Compared with women who were inactive both before and after diagnosis, women who increased physical activity after diagnosis had a 45% lower risk of death (95% CI, 0.22 to 1.38), and women who decreased physical activity after diagnosis had a four-fold greater risk of death (95% CI, 1.45 to 10.50).

- Irwin ML, Smith AW, et al. Influence of Pre- and Postdiagnosis Physical Activity on Mortality in Breast Cancer Survivors: The Health, Eating, Activity, and Lifestyle Study. *Journal of Clinical Oncology* 2008.

C- Peptide – HEAL Study

- 604 women breast Ca and NIDDM.
- Fasting C-peptide levels
- Elevated C-Peptide associated with
 - 31% elevated all cause mortality
 - 35% elevated Breast Ca deaths (2x incr.)
- Controlled for adjuvant treatment, race, BMI, disease stage ER status.
 - Irwin ML, Duggan C, Wang CY, Smith AW, McTiernan A, Baumgartner RN, Baumgartner KB, Bernstein L, and Ballard-Barbash R. Fasting C-peptide levels and death resulting from all causes and breast cancer: the health, eating, activity, and lifestyle study. *J Clin Oncol* 29: 47-53, 2011.

C- Peptide – HEAL Study

- Conclusion
- The NIDDM study complements the earlier study
- Moderate PA may help keep low BMI and low C-Peptide
- ..although no trial has examined weight loss or physical activity induced changes in insulin or C-peptide on breast cancer outcomes, trials testing metformin on breast cancer outcomes are in progress!

BUT WAIT !!!!!

- Molitch ME, Fujimoto W, Hamman RF, and Knowler WC. The Diabetes Prevention Program and Its Global Implications. *J Am Soc Nephrol* 14: S103-107, 2003
- Diet education, 30 min walk 5x and weight loss of 7% of base line weight
- TWICE AS EFFECTIVE AS METFORMIN !

Compliance in the sick..

- N 242
- Usual Care 82
- Resistance 82
- Aerobic 78
- 70.2% of exercise sessions were attended

Courneya KS, et al. Barriers to supervised exercise training in a randomized controlled trial of breast cancer patients receiving chemotherapy. *Ann Behav Med* 35: 116-122, 2008.

Chemo and fitness

- Same group
- Hb still fell during treatment
- But
- VO2 Max didn't

Dolan LB, et al. Hemoglobin and aerobic fitness changes with supervised exercise training in breast cancer patients receiving chemotherapy. *Cancer Epidemiol Biomarkers Prev* 19: 2826-2832, 2010.

My arm will get bigger

- 23 women
- Dragon boat racing
- Breast surgery with sentinel node or axillary clearance
- Both arms got bigger

McNeely ML, et al. Effect of acute exercise on upper-limb volume in breast cancer survivors: a pilot study. *Physiother Can* 61: 244-251, 2009

Do it yourself and you'll preach it better..



SOLO RACE RECORDS 19.2km

Record	Year	Time	Swimmer
First Male Crossing	1956	9:45:00	Gerd von Dincklage Shulinburg
First Female Crossing	1969	9:35:00	Lesley Meaney (nee Cherriman)
First Male Double Crossing	1991	14:08:05	Peter Tanham
First Female Double Crossing	1994	12:06:12	Barbara Pellick
Fastest Male	2000	4:00:15	Mark Saliba
Fastest Female	1993	4:10:03	Tamara Bruce (Natural Jetty)
	2000	4:25:53	Bronwyn Whitehead (Thomson Bay)
First Backstroke Crossing	2005	7:22:20	Hamish Osborne

Green Prescription for Everyone

- Tamoxifen \$108M / yr
- Herceptin \$35M / yr
- If every sedentary adult received a green prescription...
- COST NEUTRAL after 2 years
(cardiovascular disease savings alone)

Elley R, Kerse N, Arroll B, Swinburn B, Ashton T, and Robinson E. Cost-effectiveness of physical activity counselling in general practice. *N Z Med J* 117: U1216, 2004.

How are we doing?

- 1999 Newcastle Kerse report - 51% GP' s prescribing Green Script but by
- 2006 - 13% advice and 3% GrRx

Bengt Saltin

“Those working in the field of obesity have got their message across very successfully. Everybody can see a weight gain. Poor physical fitness is there just as much, but one cannot actually see it”

“..poor physical fitness is a much more severe risk factor for premature morbidity and mortality than obesity. Poor fitness may be at least twice as dangerous.”

It is no doubt true that (researchers) are prone to emphasize insufficiently the therapeutic virtues of exercise.

Cal State J Med 1917

Where to start?

- History taking proforma

- PC
- HxPC
- Past Hx
- Family Hx
- Social Hx
- Medications
- Allergies
- Examination
- Inx
- Diff Dx
- Problem List
- Plan

Where to start?

- History taking proforma

- PC
- HxPC
- Past Hx
- Family Hx
- Social Hx
- PAHx (Physical Activity Hx)
- Medications
- Allergies
- Examination
- Inx
- Diff Dx
- Problem List
- Plan

Sedentary or active job?

Do they meet physical activity guidelines?

Do they watch > 2hrs TV daily?

1. Lack of regular exercise

2. Too much inactivity

International Physical Activity Questionnaire – Short Self-Admin

Think about all the **vigorous** activities that you did in the **last 7 days**. **Vigorous** physical activities refer to activities that take hard physical effort and make you breathe much harder than normal. Think *only* about those physical activities that you did for at least 10 minutes at a time.

- During the **last 7 days**, on how many **days** did you do **vigorous** physical activities like heavy lifting, digging, aerobics, or fast bicycling?
- How many **minutes** did you usually spend doing **vigorous** physical activities on one of those days?

Think about all the **moderate** activities that you did in the **last 7 days**. **Moderate** activities refer to activities that take moderate physical effort and make you breathe somewhat harder than normal. Think only about those physical activities that you did for at least 10 minutes at a time.

- During the **last 7 days**, on how many **days** did you do **moderate** physical activities like carrying light loads, bicycling at a regular pace, or doubles tennis? Do not include walking.
- How many **minutes** did you usually spend doing **moderate** physical activities on one of those days?

Think about the time you spent **walking** in the **last 7 days**. This includes at work and at home, walking to travel from place to place, and any other walking that you might do solely for recreation, sport, exercise, or leisure.

-
- During the **last 7 days**, on how many days did you **walk** for at least 10 minutes at a time?
- How many **minutes** did you usually spend **walking** on one of those days?

-
-
-

Measure Fitness

- Chair Stand Test
- Timed up and Go Test
- 6 Minute Walk Test
- 12 Minute Run Test

30 Second Senior Chair Stand Test Norms - SENIOR FITNESS TEST MANUAL, R.E. RIKLI AND C.J. JONES

AGE	10-14		15-19		20-24		25-29		30-34		35-39		40-44		45-49		50-54		55-59		60-64		65-69		70-74		75-79		80-84		85-89		90-94	
% Rank	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M
EXCELLENT	30	32	32	34	34	36	32	34	30	32	28	30	26	28	24	26	22	24	20	22	18	20	16	19	16	18	16	18	15	16	14	15	12	13
GOOD	28	29	30	31	32	33	30	31	28	29	26	27	24	25	22	23	20	21	18	19	16	17	14	16	14	16	13	15	12	13	11	12	9	11
AVERAGE	26	27	28	29	30	31	28	29	26	27	24	25	22	23	20	21	18	19	16	17	14	15	13	14	12	13	12	13	10	11	9	10	7	9
BELOW AVERAGE	23	25	25	27	27	29	25	27	23	25	21	23	19	21	17	19	15	17	13	15	11	13	11	11	10	11	9	10	8	9	7	7	4	7
POOR	20	21	22	23	24	25	22	23	20	21	18	19	16	17	14	15	12	13	10	11	8	9	8	8	7	8	6	7	4	6	4	7	0	3

From <http://www.topendsports.com//>

List of all Tests – sample of >300 tests

- * 1-RM Tests
 - * 1RM Bench Press
 - * 1 km Run (IPFT)
 - * 1 Mile Walk Test
 - * 10m Beep Test
 - * 1.6 km (1 mile) Run
 - * 1.5 mile run test (PRT)
 - * 2 Hop Jump
 - * 2-Mile Run (APFT)
 - * 3 km Run
 - * 3-Mile Run (PFT)
 - * 5 km Run
 - * 3/4 court sprint
 - * 3-Cone Drill (NFL)
 - * 3 Hop test
 - * 6 minute run
 - * 20 meter Shuttle Run Test (beep, bleep)
 - * 20m Miller Run Test
 - * 20 Yard Agility
 - * 30-15 Intermittent Fitness Test
 - * 30-second Wingate test
 - * 300 meter run
- * 20 Yard Agility
- * 30-15 Intermittent Fitness Test
- * 30-second Wingate test
- * 300 meter run
- * 30-second Wingate test
- * 300 meter run
- * 400m run test
- * 300-yard Shuttle
- * 505 Agility Test
- * 800m Run Test
- * 90/90 (AKE) hamstring test
- * Abalakov Jump (ABK) - Bosco
- * Abdominal Curl - NCF
- * Abdominal Endurance Tests
- * Abdominal Strength Test (7 Stage)
- * Abdominal Strength Test (4 Level)
- * Ab Strength Test - straight leg
- * Aero Test
- * Agility - AAHPERD for seniors
- * Agility Test for AFL
- * Air-Displacement Plethysmography
- * Allergy Testing
- * Alternate hand wall toss test

Pre-Participation Health Screenings

1. To identify and exclude individuals with medical contraindications to exercise.
2. To identify persons with clinically significant disease who should be on a medically supervised exercise programme.
3. To identify individuals with disease symptoms and risk factors for disease development who should receive further medical evaluation before starting an exercise programme.
4. To identify persons with special needs for safe exercise participation (e.g., elderly persons, pregnant women).

Physical Activity Guidelines

- 2 hr 30 min mod activity/week
 - Or 1 hr 15 vigorous activity
 - And muscle strengthening exercises 2x/wk
 - 10 minute snacks
- Adults
 - Doubling up is even better
 - Over 65
 - Balance exercises
 - Medically unwell
 - Disabled
 - Pregnant
 - Post Partum

PARmed-X MEDICAL EXAMINATION

Following is a checklist of medical conditions for which a degree of precaution and/or special advice should be considered for those who answered "YES" to one or more questions on the PAR-Q, and people over the age of 69. Conditions are grouped by system. Three categories of precautions are provided. Comments under Advice are general, since details and alternatives require clinical judgement in each individual instance.

	Absolute Contraindications	Relative Contraindications	Special Prescriptive Conditions	ADVICE
	Permanent restriction or temporary restriction until condition is treated, stable, and/or past acute phase.	Highly variable. Value of exercise testing and/or program may exceed risk. Activity may be restricted. Desirable to maximize control of condition. Direct or indirect medical supervision of exercise program may be desirable.	Individualized prescriptive advice generally appropriate: • limitations imposed; and/or • special exercises prescribed. May require medical monitoring and/or initial supervision in exercise program.	
Cardiovascular	☐ aortic aneurysm (dissecting) ☐ aortic stenosis (severe) ☐ congestive heart failure ☐ crescendo angina ☐ myocardial infarction (acute) ☐ myocarditis (active or recent) ☐ pulmonary or systemic embolism—acute ☐ thrombophlebitis ☐ ventricular tachycardia and other dangerous dysrhythmias (e.g., multi-focal ventricular activity)	☐ aortic stenosis (moderate) ☐ subaortic stenosis (severe) ☐ marked cardiac enlargement ☐ supraventricular dysrhythmias (uncontrolled or high rate) ☐ ventricular ectopic activity (repetitive or frequent) ☐ ventricular aneurysm ☐ hypertension—untreated or uncontrolled severe (systemic or pulmonary) ☐ hypertrophic cardiomyopathy ☐ compensated congestive heart failure	☐ aortic (or pulmonary) stenosis—mild angina pectoris and other manifestations of coronary insufficiency (e.g., post-acute infarct) ☐ cyanotic heart disease ☐ shunts (intermittent or fixed) ☐ conduction disturbances • complete AV block • left BBB • Wolff-Parkinson-White syndrome ☐ dysrhythmias—controlled ☐ fixed rate pacemakers	• clinical exercise test may be warranted in selected cases, for specific determination of functional capacity and limitations and precautions (if any). • slow progression of exercise to levels based on test performance and individual tolerance. • consider individual need for initial conditioning program under medical supervision (indirect or direct).
			☐ intermittent claudication	progressive exercise to tolerance
			☐ hypertension: systolic 160-180; diastolic 105+	progressive exercise; care with medications (serum electrolytes; post-exercise syncope; etc.)
Infections	☐ acute infectious disease (regardless of etiology)	☐ subacute/chronic/recurrent infectious diseases (e.g., malaria, others)	☐ chronic infections ☐ HIV	variable as to condition
Metabolic		☐ uncontrolled metabolic disorders (diabetes mellitus, thyrotoxicosis, myxedema)	☐ renal, hepatic & other metabolic insufficiency	variable as to status
			☐ obesity ☐ single kidney	dietary moderation, and initial light exercises with slow progression (walking, swimming, cycling)
Pregnancy		☐ complicated pregnancy	☐ advanced pregnancy (late 3rd	refer to the "PARmed-X for

	Special Prescriptive Conditions	ADVICE
Lung	☐ chronic pulmonary disorders	special relaxation and breathing exercises
	☐ obstructive lung disease	breath control during endurance exercises to tolerance; avoid polluted air
	☐ asthma	
	☐ exercise-induced bronchospasm	avoid hyperventilation during exercise; avoid extremely cold conditions; warm up adequately; utilize appropriate medication.
Musculoskeletal	☐ low back conditions (pathological, functional)	avoid or minimize exercise that precipitates or exasperates e.g., forced extreme flexion, extension, and violent twisting; correct posture, proper back exercises
	☐ arthritis—acute (infective, rheumatoid; gout)	treatment, plus judicious blend of rest, splinting and gentle movement
	☐ arthritis—subacute	progressive increase of active exercise therapy
	☐ arthritis—chronic (osteoarthritis and above conditions)	maintenance of mobility and strength; non-weightbearing exercises to minimize joint trauma (e.g., cycling, aquatic activity, etc.)
	☐ orthopaedic	highly variable and individualized
	☐ hernia	minimize straining and isometrics; strengthen abdominal muscles
	☐ osteoporosis or low bone density	avoid exercise with high risk for fracture such as push-ups, curl-ups, vertical jump and trunk forward flexion; engage in low-impact weight-bearing activities and resistance training
CNS	☐ convulsive disorder not completely controlled by medication	minimize or avoid exercise in hazardous environments and/or exercising alone (e.g., swimming, mountain climbing, etc.)
	☐ recent concussion	thorough examination if history of two concussions; review for discontinuation of contact sport if three concussions, depending on duration of unconsciousness, retrograde amnesia, persistent headaches, and other objective evidence of cerebral damage
Blood	☐ anemia—severe (< 10 Gm/dl)	control preferred; exercise as tolerated
	☐ electrolyte disturbances	
Medications	☐ antianginal ☐ antiarrhythmic ☐ antihypertensive ☐ anticonvulsant ☐ beta-blockers ☐ digitalis preparations ☐ diuretics ☐ ganglionic blockers ☐ others	NOTE: consider underlying condition. Potential for: exertional syncope, electrolyte imbalance, bradycardia, dysrhythmias, impaired coordination and reaction time, heat intolerance. May alter resting and exercise ECG's and exercise test performance.
Other	☐ post-exercise syncope	moderate program
	☐ heat intolerance	prolong cool-down with light activities; avoid exercise in extreme heat
	☐ temporary minor illness	postpone until recovered
	☐ cancer	if potential metastases, test by cycle ergometry, consider non-weight bearing exercises; exercise at lower end of prescriptive range (40-65% of heart rate reserve), depending on condition and recent treatment (radiation, chemotherapy); monitor hemoglobin and lymphocyte counts; add dynamic lifting exercise to strengthen muscles, using machines rather than weights.

*Refer to special publications for elaboration as required

PARmed-X for PREGNANCY

PHYSICAL ACTIVITY READINESS MEDICAL EXAMINATION

C CONTRAINDICATIONS TO EXERCISE: to be completed by your health care provider

Absolute Contraindications			Relative Contraindications		
<i>Does the patient have:</i>			<i>Does the patient have:</i>		
	YES	NO		YES	NO
1. Ruptured membranes, premature labour?	☐	☐	1. History of spontaneous abortion or premature labour in previous pregnancies?	☐	☐
2. Persistent second or third trimester bleeding/placenta previa?	☐	☐	2. Mild/moderate cardiovascular or respiratory disease (e.g., chronic hypertension, asthma)?	☐	☐
3. Pregnancy-induced hypertension or pre-eclampsia?	☐	☐	3. Anemia or iron deficiency? (Hb < 100 g/L)?	☐	☐
4. Incompetent cervix?	☐	☐	4. Malnutrition or eating disorder (anorexia, bulimia)?	☐	☐
5. Evidence of intrauterine growth restriction?	☐	☐	5. Twin pregnancy after 28th week?	☐	☐
6. High-order pregnancy (e.g., triplets)?	☐	☐	6. Other significant medical condition?	☐	☐
7. Uncontrolled Type I diabetes, hypertension or thyroid disease, other serious cardiovascular, respiratory or systemic disorder?	☐	☐	Please specify: _____		
			NOTE: Risk may exceed benefits of regular physical activity. The decision to be physically active or not should be made with qualified medical advice.		
PHYSICAL ACTIVITY RECOMMENDATION:			☐ Recommended/Approved ☐ Contraindicated		

The key question...

Does your patient have a dog?

It's not rocket science!

- Symposium - how much is enough?
- Elucidating the minimum effective dose of exercise for bone health.
- Turner – animal models
- Petit – growing children
- Vuori – young adults

Case Studies/Questions

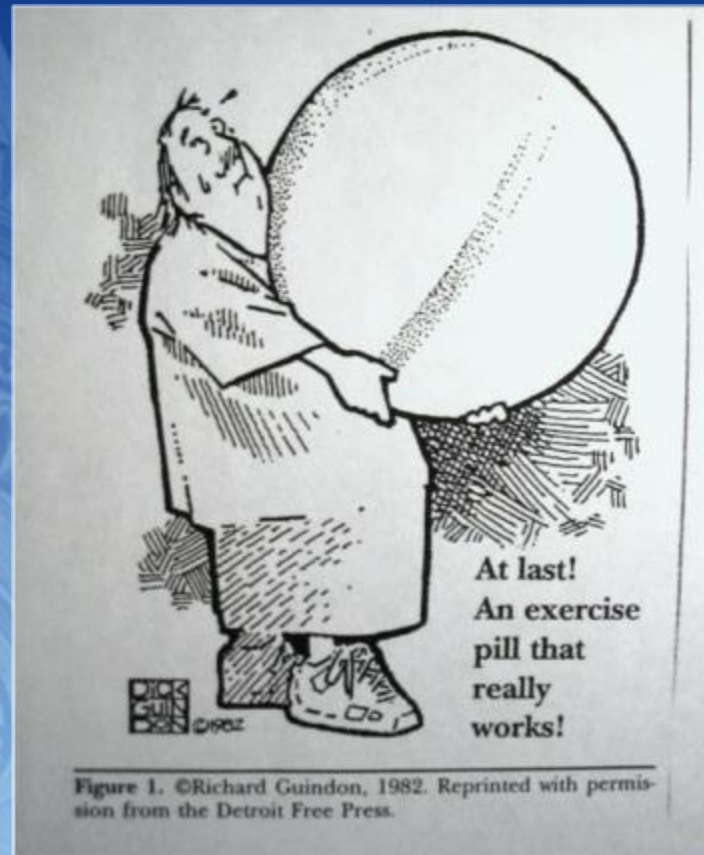


Figure 1. ©Richard Guindon, 1982. Reprinted with permission from the Detroit Free Press.