

# Why and how Green environments are better for your health

## AIPH International Green City Conference

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Royal College  
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Setting higher standards

# Health effects of gardens

Egypt-court gardens for mental  
ill health

Japan

Monasteries for ill patients

19<sup>th</sup> century hospitals

Florence Nightingale



# Looking at gardens

Flowering plants promote relaxation (EEG & EMG)

*Yamano et al 2004*

Viewing plants reduces BP & HR

*Son et al 2004*

Viewing plants improves EEG in schizophrenia

*Son et al 2004*

Gardening reduces stress

*Unruh 2004*



# Viewing nature scenes

In few minutes:

reduces-emotion/psychological stress

fear, anger, sadness

BP, PR, muscle tension

brain EEG activity (Japan)



# Green gardens in hospitals

Improve mood

Reduce stress in patients, families & staff

Place of escape from stress

Increase satisfaction of patients, families & staff

Biodiversity important

But not if concrete gardens

*Roger Ulrich, 2002*



# Sculpture

“Bird garden” on roof top  
Surrounded by cancer wards  
No greenery, only sculptures  
20% of patients had strong negative reactions

So urban design can influence health

Hefferman et al 1995; Duke U



# Clinical outcomes

Uppsala

Cardiac surgery

Randomised to view nature scenes

Reduced post operative anxiety & pain

Abstract painting increased anxiety!

Eltinge & Ulrich 1993



# Ornamental indoor plants

270 patients randomised

Surgical hospital recovery rooms

Eight species of plants during recovery

Reduced - LoS

use of analgesics

pain, anxiety, fatigue

Improved-physiology

satisfaction with rooms

SH Park, 2002, MD Kansas





# Exercise

Benefits cardiovascular system

Improves mood, depression, dementia

Improves balance & reduces falls

Protects bone density

Improves lung disease

Improves stroke disability

**Counteracts the effects of obesity**



# Physical improvement of Sport

Cardiovascular & respiratory

Back

Flexibility & strength

Vitamin D

Better diet; less coffee & cigs!

Weight loss – diabetes etc

55% of a study group said ‘improved a lot’  
*There is a gym outside your window!*



# Sunlight

Vitamin D in skin

-March to October

Reduces blood pressure



# Exercise

Inactivity is 4<sup>th</sup> leading cause of death

*So increase activity*

*improve exercise environment*



# Therapeutic gardening

Is the purposeful use of plants and plant-related activities to promote health and wellness for an individual or group



# Care farming

Strong in Europe - *Greencare* farms

500 Norway, 550 Netherlands etc (2004)

Farmers, healthcare & patients

Psychiatric patients, learning disabilities,  
drug abusers, elderly, obesity, stress

National Care Farm Initiative UK

J Pretty, U of Essex



# Gardening

At home: garden or allotments

Within projects

e.g. THRIVE at Battersea Park &  
Reading

Complementary therapy



# Benefits of gardening

Physical fitness & balance

Cardiovascular & respiratory health

Complications of obesity

Encourages weight loss

Potential savings for NHS

**Prescribe gardening**

**Make more gardens!**





# Calories burned in 30 min

Sleeping	36	
Walking	90	
Raking	162	=rowing machine
Weeding	182	
Digging	202	lifting weights
Chopping wood	243	
Push mowing	243	treadmill
Shovelling	243-364	
Turning compost	250-300	



# Benefits of gardening

Hobbies

Health

Better food grown

Nutrition

Accredited training

Employment in gardening industry

Income



# Disability

In the UK: **10M with disability, of which**

770K are children

750K with dementia – 1M in 2025

250K admitted to psychiatric  
hospitals annually

300K disabled from stroke



# Physical disability

- Impairs physical performance
- Causes depression
- Reduces ability to work
- Causes poverty
- Social isolation
- Increases alcohol, obesity & smoking
- Reduces activity



# Stroke

**300K with stroke in UK**

IR aged 40:

*'I couldn't see a way I would ever be able to .....walk in my garden, let alone work in a garden. Therapy through gardening is a powerful tool-it helped me come to terms with my stroke, and it helped me to learn how to live again'*



# Social and therapeutic gardening

For the physically disabled:

- stroke
- partially sighted & blind
- elderly

For the mentally disabled:

- mental health problems
- learning difficulties
- dementia



# Visual impairment

*'I get so cross with myself not being able to do more in my garden. I don't want to rely on others all the time.*

*THRIVE make you realise there are things you can do'.*

-a partially sighted client



# THRIVE

2006 Survey of disabled:

28% gardening as hobby

2/3 participate in gardening

87% have access to a garden

-found gardening beneficial  
enjoyed gardening tasks





# THRIVE

Sites at Reading & Battersea Park

1000 projects across UK

24,000 disabled & disadvantaged people  
involved each week

Therapy & research

Teaching therapeutic gardening

Information & journal



# *Fitness the Dynamic Gardening Way*

Jeff Restuccio 1992



# Trees

Remove carbon dioxide and store carbon

Remove particulates

    sulphur dioxide

    nitrogen oxides

    carbon monoxide

    toxic elements e.g. lead, nickel

Reduce water run off



# Particulates

Cause - lung diseases  
cardiovascular disease

More trees would reduce level  
One urban park removed 48lb of  
PM<sub>10</sub> daily!



# Conclusions

Brown sculpture gardens deleterious  
Green gardens improve mental health  
& recovery from surgery  
Not barren green saharas  
Gardening improves mind and body  
i.e. therapeutic for mental and  
physical illnesses  
Trees benefit health



# Conclusion

**Rx -your doctor prescribes:**

**more gardens  
more gardening  
more green parks!**



# Thank you



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# Benefits of gardening

Physical:

- strength, movement ,coordination

Mental:

- social, friends, less isolation
- numeracy & literacy
- conversation
- confidence & self esteem
- better mood
- improves dementia

