

Osteoarthritis of the Knee - A Targeted Education and Self Management Program

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BACKGROUND

Pilot Study: Cohort study
1999 - 2002 N = 75

RCT OAK vs Usual Management
2003 - 2005 N = 145

RCT OAK vs ASMP
2006 - ongoing N = 105 (still recruiting)

Why Self-Management?

- Promotes partnership in care (cost effective?)
- Teaches people to take control
- Long term behaviour change?
- Improves self-efficacy

- Benefits not conclusive in arthritis^{1,2,3}
(- different SM models and outcomes)
- Jury is out
- Health professionals vs lay leaders?

1 Warsi A, et al: Self-management education programs in chronic disease. A systematic review and methodological critique of the literature. Archives of Internal Medicine 2004; 164(15):1641-9

2 Buszewicz M et al: Self management of arthritis in primary care: randomised controlled trial. BMJ 2006,doi:10.1136/bmj.38965.375718.80 (13 October 2006)

3 Chodosh J, et al: Meta-analysis: Chronic disease self-management programs for older adults. Annals of Internal Medicine 2005; 143:427-38



Self-management models vary

Often use health prof (diabetes, asthma)
Individual or group setting
Vary from 2-6 weeks
Internet programs

Arthritis SM - usually:
ASMP/ GMOL
Lay leaders
Group setting
Not disease specific
6 weeks

Principles of Self-Management



Taking control → self-manager

Self-efficacy

Cognitive Behavioural Therapy

Setting SMART Goals

Group dynamics

Change in behaviour



OAK STUDY

-Why?

Patients concerned
about:
Pain
Exercise
Medication & analgesia

Disease specific
Health professionals
Multidisciplinary
-Does this matter?

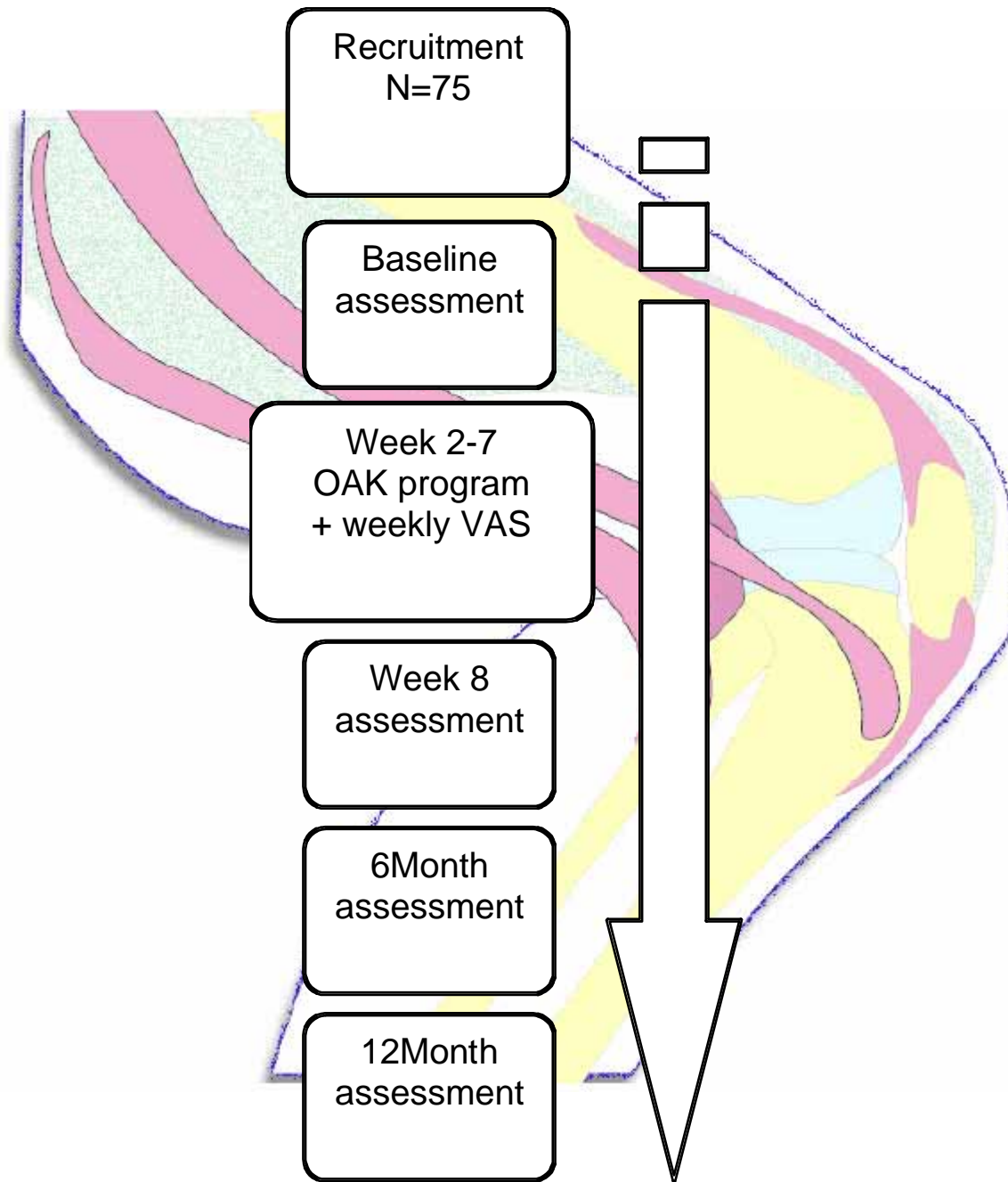


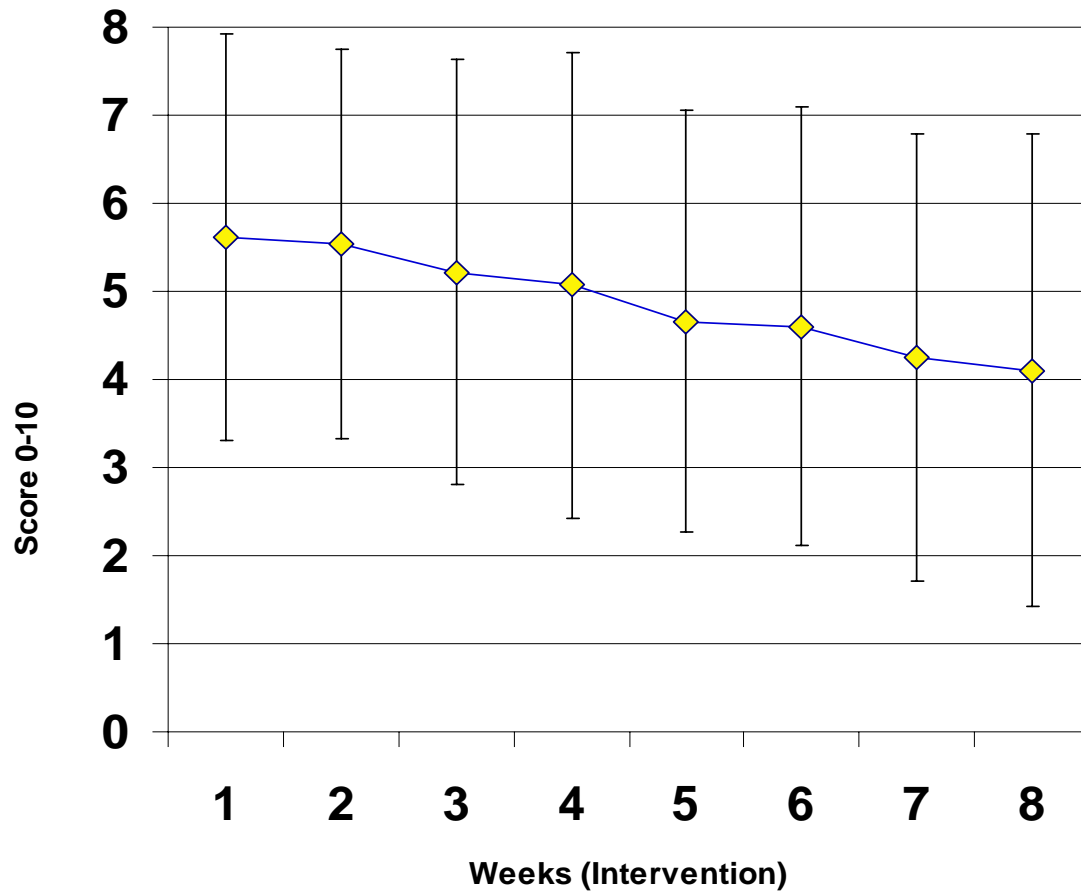
Pilot Study Results

N=74

Longitudinal cohort study
showed improvements in :

- Quality of Life Outcomes
- Pain
- Physical Function
- Balance

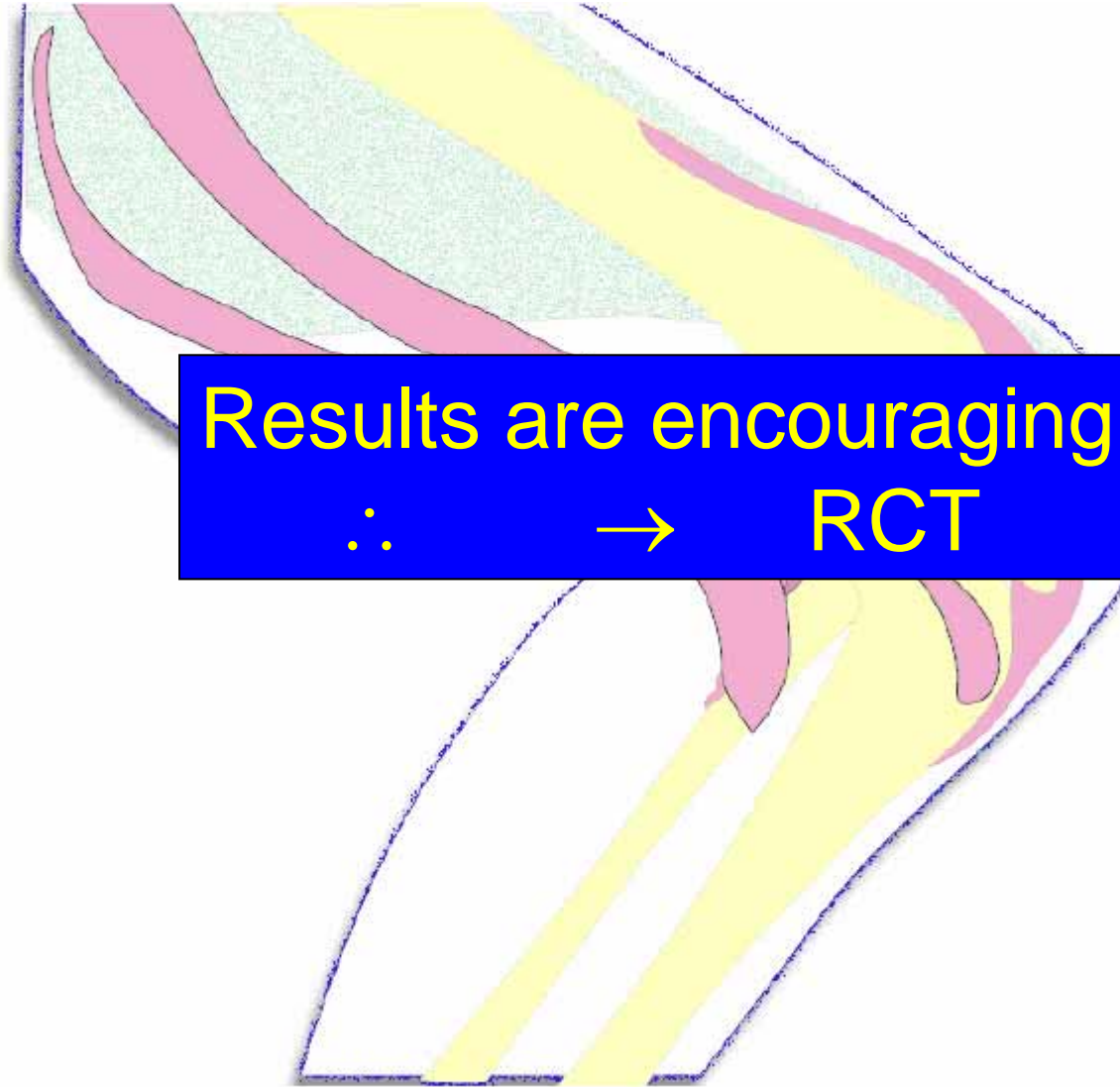




**Visual Analogue Pain Scores (0-10) –
B/L to Week 8 (program intervention phase).
 $P = <0.001$ Mean (\pm SD)**

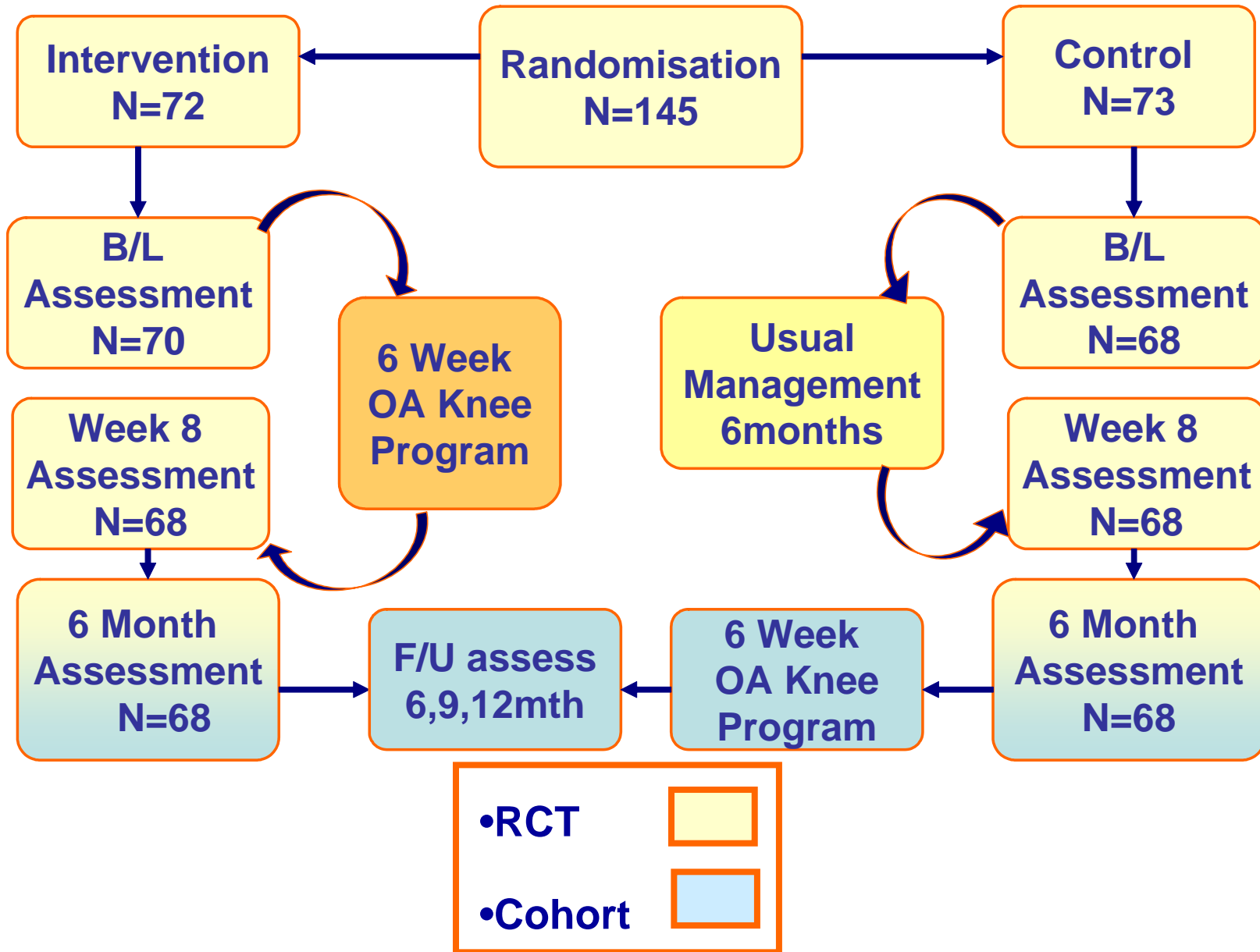
WOMAC	Baseline	8 Weeks	6 Months	12 Months	% Improvement BL to 12 Mths
Pain	7.92 (3.7)	6.78 (3.0)*	6.27(3)*	5.73 (3.1)*	27.6
Stiffness	3.83 (1.7)	3.19 (1.7)*	3.07(1.4)*	2.92 (1.5)*	23.7
Physical Function	24.85(11)	20.95 (10.3)*	19.83(10.3)*	18.42 (9.4)*	25.8
Total	36.42(15.2)	30.58 (13.4)*	28.8(14)*	26.73 (12.8)*	26.6
BALANCE					
Left	6.1 (4.1)	7.3 (3.5)*	7.6 (3.3)*	8.1 (3.3)*	32
Right	6.1 (4.0)	7.5 (3.5)*	7.4 (3.1)*	7.8 (3.3)*	28

Time:	Baseline	8Weeks	12Months	p value BL to 12Mths
Physical function	48.2 ± (20.6)	52.9 ± (21.6)	57.53 ± (22.2)	<0.0001
Pain	35.1 ± (15)	40 ± (16.9)	42.2 ± (20.3)	0.02
Vitality	50.4 ± (23.4)	56.9 ± (16.9)	54.5 ± (21)	0.2
General Health	63.9 ± (21.1)	66.6 ± (18.7)	69.9 ± (18.7)	0.01
Social function	71.1 ± (24.7)	78.8 ± (20)(78.27 ± (25)	0.05
Mental Health	71.5 ± (18.8)	77.4 ± (13.6)	79.6 ±(13.9)	<0.0001



Results are encouraging
∴ → RCT

STUDY DESIGN FLOW CHART



METHODS

Subjects: 145 (40 males & 105 females). Mean age 67 yrs

Recruited via TV, community newspaper, GP surgery posters

- ~ 90% self initiated as a response to advertisements
- ~ 5% GP initiated
- ~ 5% word of mouth

Inclusion criteria

- Diagnoses of OA by GP and/or X Ray
- Able to walk 300m
- GP referral
- Consents to randomisation
- Agrees to follow up assessments

Exclusion criteria

- Coexisting inflammatory musculoskeletal conditions
- Existing co-morbidities

Program Overview (6 weeks)

- **SMART Goals**
- **Meeting weekly objectives**
- **Pathophysiology**
- **Physiotherapy modelling**
- **Fitness and exercise**
- **Falls prevention/balance**

- **Nutrition/weight control**
- **Medications/analgesia**
- **Behaviour modification techniques + CBT**
- **Biomechanical problems**
- **A team approach to health care**

Variables

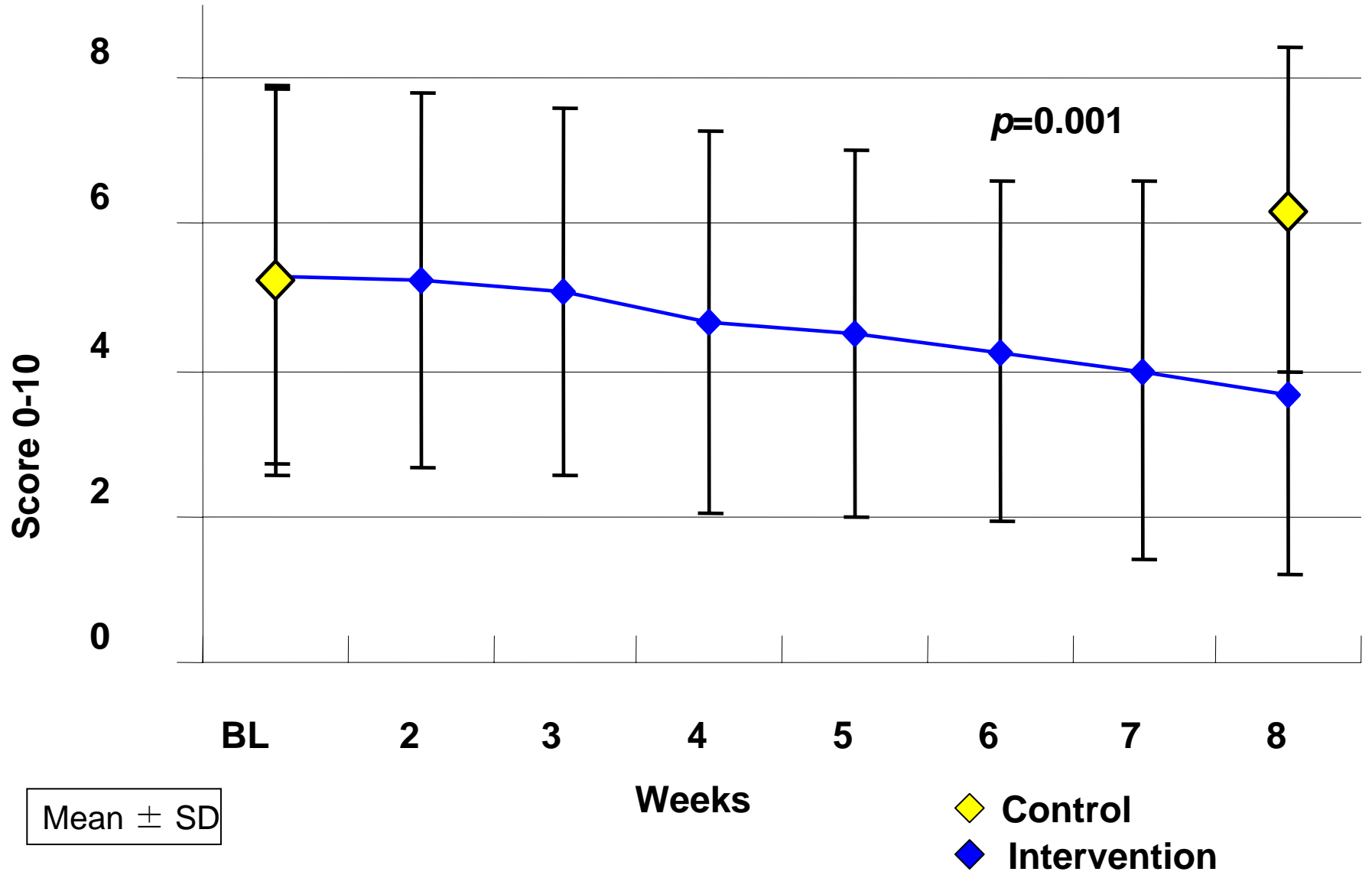
Independent

- OA knee program
- Conventional care

Dependent

- VAS
- SF36
- WOMAC
- Goniometer
- Dynamometer
- FKAT (Functional knee assess)

Visual Analogue Pain Score (Intervention phase)



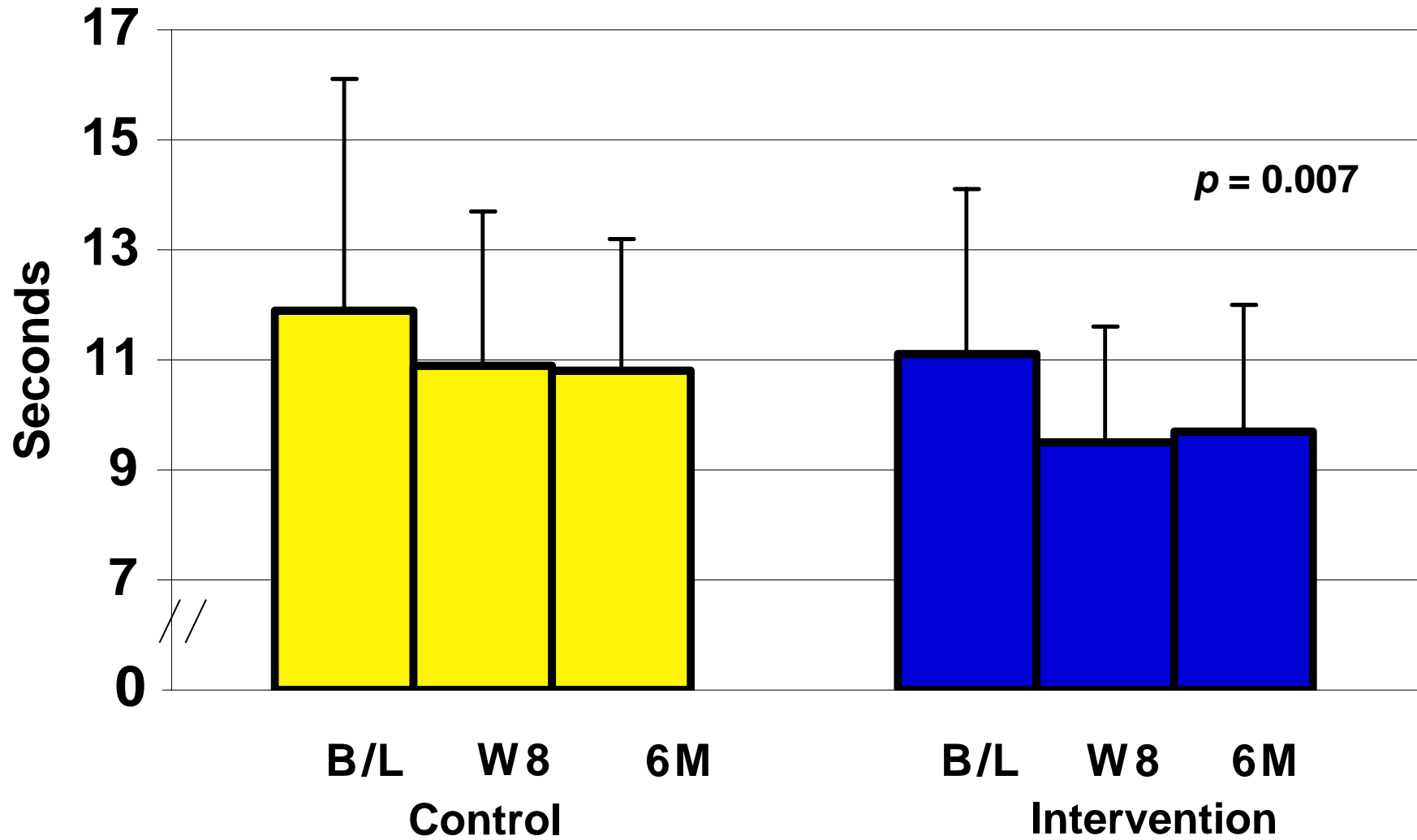
WOMAC Mean (SE) Baseline to 6Months

WOMAC	Baseline Control	Baseline Intervention	W8 Control	W8 Intervention	M6 Control	M6 Intervention	p-value group*time
Pain Mean	7.13	7.13	6.90	5.40	6.64	6.078	0.002
(SE)	0	0	0.27	0.27	0.28	0.28	
Stiff Mean	3.59	3.59	3.53	3.09	3.39	3.09	0.15
SE	0	0	0.15	0.15	0.15	0.15	
Phys Funct Mean	24.21	24.21	24.07	18.81	23.45	19.68	<0.0001
SE	0	0	0.76	0.76	0.97	0.97	
Total Mean	34.98	34.98	34.51	27.36	33.41	28.93	<0.0001
SE	0	0	1.06	1.06	1.25	1.25	

SF36 Mean (SE) Baseline to 6Months

SF36	Baseline Control	Baseline Intervention	W8 Control	W8 intervention	M6 control	M6 intervention	p-value group*time
RP Mean	36	36	30.59	48.69	39.18	46.64	0.015
SE	0	0	4	4	4.8	4.8	
BP Mean	46.22	46.22	44.21	51.22	44.72	50.74	0.05
SE	0	0	1.9	1.9	2.1	2.1	
GH Mean	65.9	65.9	67.17	69.67	66.2	70.05	0.2
SE	0	0	1.3	1.3	1.7	1.7	
VT Mean	54.85	54.85	53.66	59.3	56.15	61.08	0.03
SE	0	0	1.5	1.5	1.7	1.7	
SF Mean	73.97	73.97	71.72	83.25	72.81	77.74	0.005
SE	0	0	2.1	2.1	2.6	2.6	
RE Mean	62.18	62.18	70.91	74.85	69.56	71.73	0.8
SE	0	0	4	4	4.4	4.4	
MH Mean	76.1	76.1	75.18	77.11	74.89	78.41	0.2
SE	0	0	1.2	1.2	1.4	1.4	
PF Mean	47.64	47.64	48.5	54.26	50.05	54.12	0.07
SE	0	0	1.4	1.4	2.1	2.1	

Functional Knee Assessment Test



Strength and Range of Motion



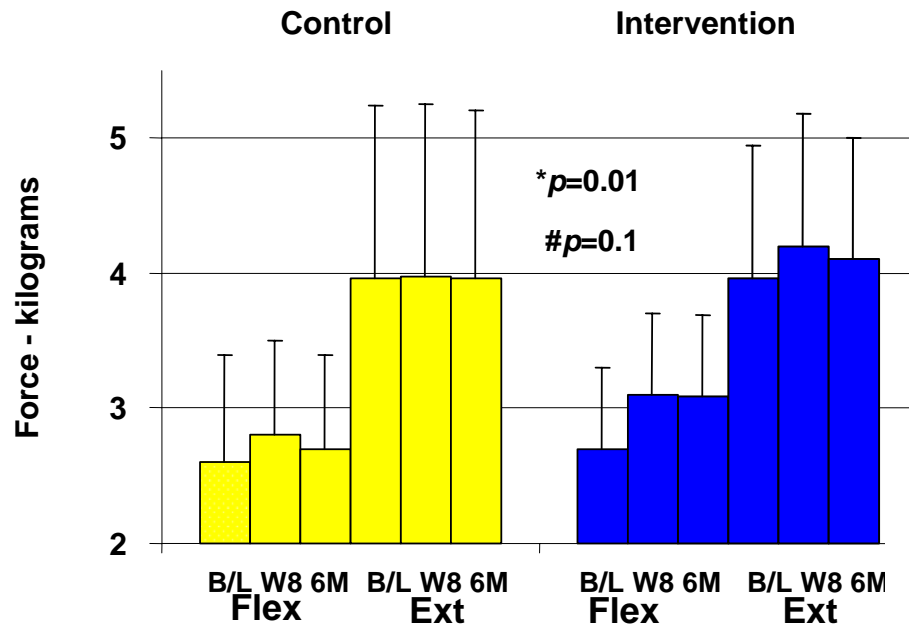
Dynamometer - Flexion and Extension

- Improvements: minimal

Goniometer - Flexion and Extension

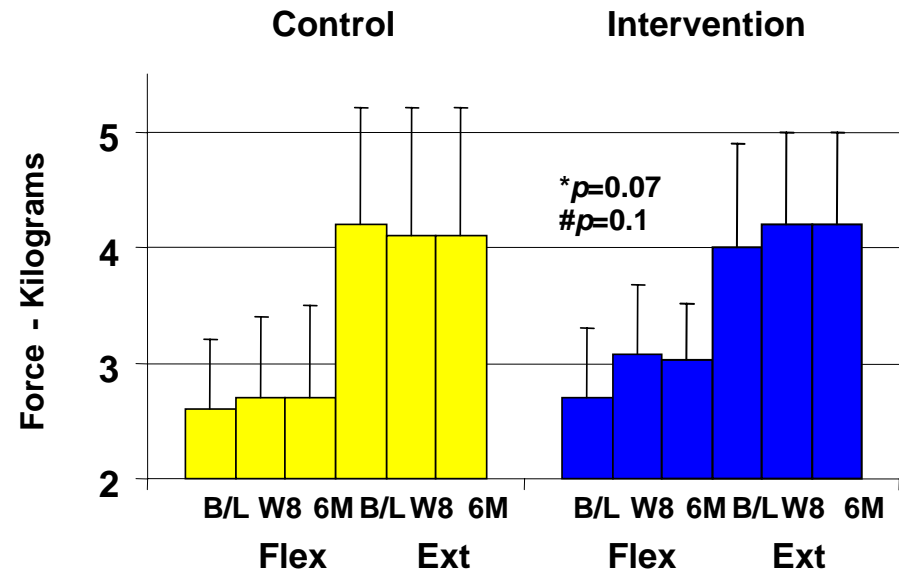
- Improvements: minimal

Right knee Strength - *Flexion & # Extension



Dynamometer Results

Left Knee Strength - *Flexion & #Extension





TKR mailout

259 participants contacted (pilot & RCT)
192 replied

5% on TKR waiting list
Of these, 68% delayed TKR

Pre OAK TKR - ~12 days hospital
Post OAK - ~ 8 days hospital

RCT Results

An anatomical diagram of a shoulder joint, showing the humeral head, glenoid, and surrounding soft tissues. The diagram is overlaid with several colored regions: a light blue area at the top, a yellow area on the right, and a pink area on the left. A black bracket on the right side of the diagram spans the pink and yellow areas, with a text box labeled '6 months' next to it. On the left side, three blue text boxes are stacked vertically, each containing a result. At the bottom, a wide blue text box contains a question mark and a time period.

Reduction in pain

Improvement in quality of life

Improvement in function

6 months

? Improvements maintained to 12 months



12month Follow-Up

Scarcity of published long term follow-up

Answers an important question about long term improvement

WOMAC Mean (± SD) All participants: B/L to 12mths

WOMAC	B/L	Wk8	6Mth	12Mth	<i>p</i> B/L to 12mths
Pain	6.78	5.03	5.43	5.31	<0.0001
SD	(3.8)	(3.3)	(3.7)	(3.9)	
Stiffness	3.43	2.89	2.87	2.74	<0.0001
SD	(1.6)	(1.7)	(1.6)	(1.7)	
Physical Function	23.86	18.29	18.7	18.62	<0.0001
SD	(12)	(10)	(10.9)	(12.5)	
Total	34.12	26.36	27.01	26.73	<0.0001
SD	(16.6)	(14.1)	(15.3)	(17.3)	

SF-36 results, Baseline to 12Months

Time:	Baseline	8Weeks	12Months	p value BL to 12Mths
SF-36 Domains				
Physical function	48.2 ± (20.6)	52.9 ± (21.6)	57.53 ± (22.2)	<0.0001
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Data are Mean ± SD: Differences assessed with repeated measure ANOVA with the Duncan post hoc test.

Functional Knee Assessment Test

	Mean	(SD)	<i>p</i> value B/ L to 12Mths
Baseline	10.85	(2.96)	<0.0001
Week 8	9.45	(2.22)	<0.0001
6Mths	9.65	(2.36)	<0.0001
9Mths	9.71	(2.55)	<0.0001
12Mths	9.8	(2.59)	<0.0001

General linear analysis using repeated measures ANOVA.
Baseline – 12months. Mean (\pm SD) n = 109



OAK vs ASMP

Disease specific SMP using HP's

Are health professionals needed in OAK self management?

Yes?^{1,2}

¹Jordan J, Osborne R. Chronic disease self-management education programs: challenges ahead. eMJA15/11/06

²Warsi A, et al. Self-management education programs in chronic disease. A systematic review and methodological critique of the literature. Archives of Internal Medicine 2004, 164(15):1641-9

Differences

ASMP
Lay Leaders



- ?Cost Effective
- Generic content
- Heterogenous
- Limited knowledge
- Modeling potential

OAK
Health Professionals



- Good knowledge base
- OA concerned with pain, medications, analgesia
- Co-morbidities present in OA
- Falls prevention
- Multidisciplinary
- Chronic care model




OAK vs ASMP

Outcome measures same as RCT +

- Single leg timed balance
- Timed step test
- Self-efficacy measure
- Global improvement score
- No dynamometer or goniometer

Assessments:

BL, WK8, 6, and 12months



Recruitment to date:
105 randomised
30 due to start next month

Need another 30 participants

An anatomical diagram of a joint, possibly a knee, showing various layers and structures in different colors: pink, yellow, light blue, and white. The diagram is partially obscured by two blue text boxes.

Acknowledgments

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Jean McQuade
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