

Get Moving: Mental Health & Physical Activity

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Objective

- To provide a collection of **evidence** and **strategies** that can be used in your practice to support physical activity promotion for the prevention and management of mental health concerns.



Mental Illness and Addictions

- Highly Prevalent: 1 in 5 Canadians
- Most Common:
 - Depression: 4-5%
 - Anxiety (social phobia / agoraphobia / panic disorder): 5-15%
 - Bipolar Disorder: 1-2% / Schizophrenia: ~1%
 - Substance Use or dependence: 5-6%
 - Eating Disorders: 0.3-1%

Patten SB, et al. Descriptive Epidemiology of Major Depressive Disorder in Canada in 2012. Can J Psych 2015;60(1):23-30.

Pearson C. et al. Mental and substance use disorders in Canada. Statistics Canada, Catalogue no.82-624-X (Health at a Glance, September 2013).



Physical Activity (PA) and Mental Health Promotion

- Improvement in mental health
- Prevention of poor mental health/illness
- Improvement in quality of life of individuals with mental illness
- Treatment of mental illness

(Mutrie & Faulkner, 2003)



Show Me the Money!

Evidence to support PA in the prevention and management of poor mental health



What are the effects on clinical depression?



Drug (Manufacturer)	Drug					Placebo				
	Protocol Number*	Baseline	Change	d	[95% CI] d	Baseline	Change	d	[95% CI] d	
Bupropion (Eli Lilly and Company)	19 [27]	28.6	12.5	1.44	[0.79, 2.09]	22	28.2	5.5	0.63	[0.17, 1.10]
	25	26.2	7.2	0.83	[0.24, 1.41]	18	25.8	8.8	1.03	[0.50, 1.56]
	27 [28]	27.5	11	1.15	[0.96, 1.34]	181	28.2	8.4	0.88	[0.69, 1.06]
	62 (mod)	17	5.89	1.02	[0.88, 1.16]	299	17.4	5.62	1.05	[0.71, 1.38]
	62 (moderate)	24.3	8.82	1.13	[0.98, 1.27]	297	24.3	5.69	0.72	[0.39, 1.05]
Venlafaxine (Wyeth Pharmaceuticals)	203 [30]	25.6	11.2	1.37	[1.19, 1.55]	231	25.3	6.7	0.82	[0.58, 1.06]
	301 [31,32]	25.6	13.9	1.77	[1.36, 2.17]	64	24.6	9.45	1.20	[0.91, 1.50]
	302 [33]	25	11.9	1.16	[0.84, 1.49]	65	24.4	8.88	0.87	[0.60, 1.14]
	303	23.8	10.1	1.27	[0.94, 1.59]	69	24.6	9.89	1.24	[0.94, 1.54]
	313 [34,35]	25.7	11	1.34	[1.16, 1.52]	227	25.4	9.49	1.15	[0.85, 1.45]
Mefenazine (Bristol-Myers Squibb)	03A04-003 [27]	25.8	8.57	1.15	[0.90, 1.41]	101	25.9	8	0.92	[0.59, 1.26]
	03A04-004A	23.4	8.9	1.17	[0.97, 1.38]	153	23.5	8.9	1.17	[0.88, 1.47]
	03A04-004B [38]	25.3	11.4	1.41	[1.18, 1.63]	156	25	9.5	1.17	[0.87, 1.47]
	030A2-0004 / 0005	23.8	10	1.31	[0.99, 1.63]	74	24	9.84	1.27	[0.96, 1.58]
	030A2-0007 [39]	25.7	12.3	1.42	[1.20, 1.63]	175	26.4	9.8	1.11	[0.74, 1.49]
	CN104-002	23.3	10.8	1.36	[0.99, 1.73]	37	23.1	8.2	1.03	[0.70, 1.36]
	CN104-005 [40]	24.5	12	1.51	[1.20, 1.83]	86	23.3	8	1.01	[0.75, 1.27]
	CN104-006	23.8	10	1.34	[1.03, 1.65]	80	23.5	8.9	1.20	[0.90, 1.50]
	01-001	28	13.5	1.67	[0.99, 2.34]	24	27.4	10.5	1.30	[0.71, 1.89]
	02-001 [41,42]	26.6	12.3	1.28	[0.89, 1.66]	51	25.9	6.8	0.70	[0.39, 1.01]
Paroxetine (GlaxoSmithKline)	02-002 [43,44]	25	10.9	1.23	[0.78, 1.69]	36	24.9	5.8	0.66	[0.27, 1.05]
		0.7	0.93	[0.50, 1.35]	33	28.9	7.2	0.69	[0.28, 1.10]	
		2.7	1.87	[1.29, 2.44]	36	27.3	7.6	1.12	[0.70, 1.54]	
		0.8	1.60	[1.11, 2.09]	40	24.8	4.7	0.69	[0.33, 1.05]	
		1.14	0.72	[0.55]	40	25.6	6.2	0.88	[0.50, 1.26]	
		0.9	1.18	[0.76, 1.59]	41	27	10	1.19	[0.78, 1.60]	
		0.4	1.33	[0.86, 1.79]	37	27	6.7	0.86	[0.46, 1.26]	
		0	0.99	[0.60, 1.39]	40	26.8	4.1	0.41	[0.06, 0.76]	
		0.1	1.11	[0.69, 1.52]	39	28.7	3	0.37	[0.02, 0.72]	
		0.1	1.28	[1.15, 1.41]	403	24.5	8.2	1.14	[0.77, 1.51]	
	6	0.97	[0.38, 1.57]	19	24.2	6.2	0.83	[0.31, 1.35]		
	0.1	1.23	[0.57, 1.89]	19	22.3	6.7	0.86	[0.00, 1.72]		
	8.8	0.80	[0.26, 1.35]	20	25.5	4.5	0.49	[0.01, 0.97]		
	3.1	1.20	[0.38, 2.03]	13	28.3	10.9	0.99	[0.19, 1.79]		

WMD = -0.32

Kirsch et al. (2008)

Original Research

Changes Over Time in Physical Activity and Psychological Distress Among Older Adults

Joha Cairney, PhD¹; Gay Faulkner, PhD²; Scott Veldhuizen, BA³; Terrance J Wade, PhD⁴


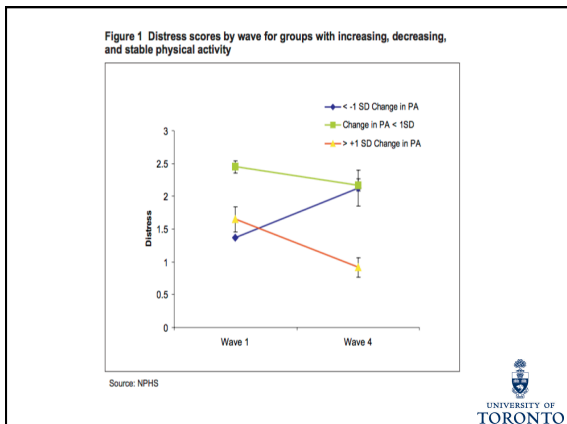
Objective: While previous research has established that regular involvement in physical activity (PA) is associated with better mental health in old age, the socio-cognitive factors that mediate the association have only been partially tested. We examined whether changes in PA are associated with changes in distress during a 6-year period, and whether this association is mediated by changes in global self-esteem, mastery, and physical health status.

Method: A residualized regression technique was used to examine changes over time in a national longitudinal survey of adults aged 65 years and older (n = 1377).

Results: There is a significant association between change in PA and change in distress. Separately, physical health status accounted for 30% of the explained variance of the longitudinal relation between PA and distress, while global self-esteem and mastery accounted for 39%. Combined, they accounted for 59% of the explained variance of PA on distress.

Conclusion: These findings highlight the importance of psychosocial factors in the relation between PA and distress. Results suggest that PA interventions focused on improving mastery or self-worth, as well as physical fitness, may yield the greatest benefit in alleviating psychological distress.

Can J Psychiatry. 2008;54(3):160-169.

Primary Prevention: Exercise and Non-Clinical Depression

- Depression symptomatology is reduced with exercise
- Overall moderate anti-depressive effect of exercise

Meta-analysis	Effect Size
MVPA (aerobic/ resistance)	-0.59
Supervised exercise	-0.37
Unsupervised exercise	-0.52

(Rebar et al., 2015)



Physical Activity and the Prevention of Depression A Systematic Review of Prospective Studies

George Mammen, MSc, Guy Faulkner, PhD

Context: Given its high prevalence and impact on quality of life, more research is needed in identifying physical activity (PA) is prot...

Evidence: Evidence of following d Database of were chosen relationships assessment d

Evidence s process, 30% PA was neg were of high

Conclusions: From a population health perspective, promoting PA may serve as a valuable mental health promotion strategy in reducing the risk of developing depression. (Am J Prev Med 2013;45(5):649-657) Crown Copyright © 2013 Published by Elsevier Inc. on behalf of American Journal of Preventive Medicine

83% of the examined studies showed a negative relationship between baseline physical activity levels and later risk of depression

through selection that baseline these studies prevent future depression. There is promising evidence that any level of PA, including low levels (e.g., walking <150 minutes/weeks), can prevent future depression.

2012 in the Cochrane 2013. Articles and examined formal quality

What are the effects on clinical depression?



What are the effects on clinical depression?

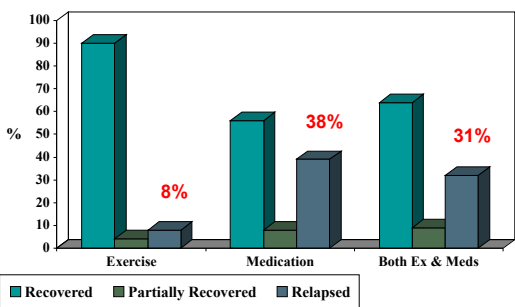
No differences between exercise and antidepressant medication were noted (SMD = -0.04 [95% CI -0.31, 0.24]) in two separate studies

(Blumenthal et al., 2003; 2007)

“as effective”

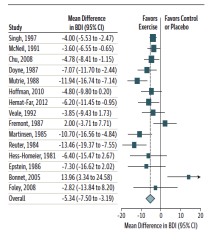


Follow-Up of Recovered Participants (N = 133) (6 Months Later)



(Babyak et al., 2000)

Figure. Mean Difference in Beck Depression Inventory Score for Exercise vs Control or Placebo Intervention



BDI indicates Beck Depression Inventory. Only 15 trials used the BDI score. The size of the data markers indicates the weight of the study. Meta-analysis used the random-effects method.

Clinical Review & Education

JAMA Clinical Evidence Synopsis

Exercise for Depression

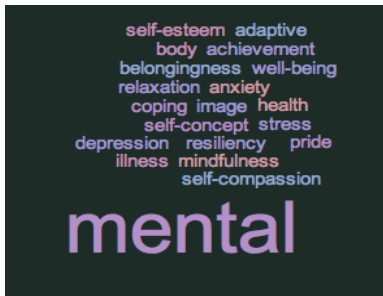
Gary Cooney, AB, MChD; Kerry Dwan, PhD; Gillian Mead, FRCP

CLINICAL QUESTION: Is exercise an effective treatment for depression?
BOTTOM LINE: Exercise is associated with a greater reduction in depression symptoms compared with no treatment, placebo, or active control interventions, such as relaxation or medication. However, analysis of high-quality studies alone suggests only small benefits.

35 SMD = -.62 [95%CI = -.81 to -.42]
 “equivalent of 5 BDI points”
 (0 to 63; <10 minimal and > 30 severe depression)



Mental health is more than just the absence of illness...



What are the typically affective responses to an acute bout of exercise?

- *Before vs. After Exercise*
 - Positive affect tends to increase pre- to post-exercise at non-exhaustive intensities
- *During Exercise*
 - Affect gets progressively **more negative** as exercise intensity increases.
 - **Moderate-intensity** exercise results in more positive affective change, but individual differences need to be considered

(Ekkekakis & Dafermos, 2012; Ekkekakis et al., 2011; Ekkekakis, Lind & Vazou, 2010)



Physical Activity Rx in the Context of Mental Health



Physical Activity Rx in the Context of Mental Health

Canadian Physical Activity Guidelines:

➤ “To achieve health benefits, adults aged 18-64 years should accumulate **at least 150 minutes of moderate-to-vigorous aerobic physical activity per week**, in bouts of 10 minutes or more”

(Canadian Society of Exercise Physiology, 2011)

Physical Activity Rx in the Context of Mental Health

Inconsistent with the evidence for mental health and physical activity:

- Intensity
- Duration
- Frequency

Physical Activity Rx for the Management of Depression

Canadian Network for Mood and Anxiety Treatments (CANMAT) 2016 Clinical Guidelines for the Management of Adults with Major Depressive Disorder: Section 5. Complementary and Alternative Medicine Treatments

Authors: Anton V. Rohlfing, PhD¹; Lyndie G. Bullock, PhD¹; Gary Faulstich, PhD²; Andrew G. Reid, PhD, MEd³; Diana McEwen, PhD⁴; Robert L. Hubbard, PhD⁵; Catherine Babinchak, PhD⁶; Lisa M. Vitaris, PhD, MBA (Exec)⁷; Andrew H. Lewinsohn, PhD⁸; Elizabeth M. Adams, PhD⁹; Catherine M. Richardson, PhD¹⁰; Rosemarie Y. Miller, PhD, PhD¹¹; Roger V. Purich, PhD¹²; and the CANMAT Depression Work Group¹³

Abstract: The Canadian Network for Mood and Anxiety Treatments (CANMAT) conducted a review of the 2009 guidelines for antidepressant and psychotherapy. The aims of this guideline update are to summarize the evidence for complementary and alternative medicine treatments for the management of major depressive disorder (MDD) in adults, with a focus on the clinical use of yoga, tai chi, and acupuncture. Methods: We conducted a systematic review of the published literature on complementary and alternative medicine treatments for MDD. We included randomized controlled trials, controlled trials, and observational studies. Results: Evidence for complementary and alternative medicine treatments for MDD is limited. Evidence for yoga and tai chi is limited to low-quality evidence for the management of MDD. Evidence for acupuncture is limited to low-quality evidence for the management of MDD. Conclusions: Complementary and alternative medicine treatments for MDD are limited to low-quality evidence. The use of complementary and alternative medicine treatments for MDD should be based on the best available evidence.

Level of evidence ^a	Criteria
1	Meta-analysis with narrow confidence intervals and/or 2 or more RCTs with adequate sample size, preferably placebo controlled
2	Meta-analysis with wide confidence intervals and/or 1 or more RCTs with adequate sample size
3	Small-sample RCTs or nonrandomized, controlled prospective studies or case series or high-quality retrospective studies
4	Expert opinion/consensus
Line of treatment	
First line	Level 1 or level 2 Evidence, plus clinical support ^c
Second line	Level 3 Evidence or higher, plus clinical support ^c
Third line	Level 4 Evidence or higher, plus clinical support ^c

Physical Activity Rx for the Management of Depression

Level 1 Evidence

- First-line monotherapy for mild to moderate MDD
- Second-line adjunctive treatment for moderate to severe MDD
- Recommendations vary, but at least:
 - 30 minutes of supervised moderate-intensity
 - 3 times per week
 - 9 weeks

(Ravindran et al., 2016)



Physical Activity Rx for the Prevention of Mental Health Concerns

- No set physical activity guidelines
- Self-paced
 - Individual intensity preference (not tolerance)
 - Enhanced sense of control (no evaluative threat)
 - Quality of the experience

(Ekkekakis & Lind, 2006; Ekkekakis et al., 2006; Parfitt et al., 2006)
- Progression is key



Strategies to Consider Including Within Your Current Practice



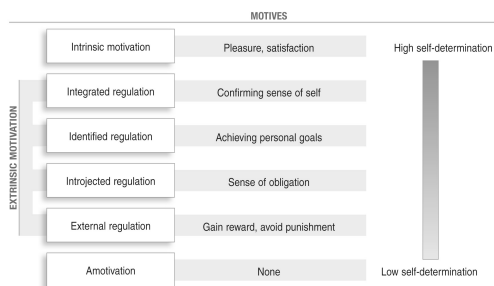
Autonomy Support in Primary Care

- Quality of the interpersonal context
 - Assessed via the *Health Care Climate Questionnaire*
- Central to facilitating self-determined motivation, healthy development, and optimal functioning
- Being autonomy supportive includes:
 - providing choice to the greatest extent possible
 - avoiding pressuring tactics
 - fostering a caring and nurturing environment
 - sharing and understanding one's feelings
 - recognizing an individual's unique perspective
 - reflective listening

(Deci & Ryan, 1987; Miller & Rollnick, 2006, 2009; Zuroff et al., 2012)



Motivation as a Continuum



(Deci & Ryan, 2000; Ryan & Deci, 2008)



Motivation as a Continuum

More autonomous motivation positively associated with:

- autonomy support from therapists
- mood during therapy sessions
- satisfaction with therapy
- intentions to persist in therapy
- better session outcomes (e.g., depression severity)

(Michalak et al., 2004; Pelletier et al., 1997; Zuroff et al., 2007, 2012)



Motivational Climate

Mastery

- Differentiated and varied tasks
- Novelty and repetition
- Task-orientated*
- Self-referenced goals
- Recognizing effort/progress
- Formative assessments
- Flexibility (learning time)

Relationships

- Collaborative problem solving
- Nurturing and caring
- Encouraging

Choice

- Activities
- Goals
- Active thinking

(Ames, 1992; Deci & Ryan, 1985, 2000; Nicholls, 1984)

A Mental Health “Spin” on Evidence-Based Behaviour Change Techniques

- **Self-Monitoring**
 - Self-compassion
 - Self-awareness vs. shaming/self-criticism
- **Goal-setting**
 - Strength-based
 - Choice
- **Planning**
 - Short-term
 - Solution-focused coping

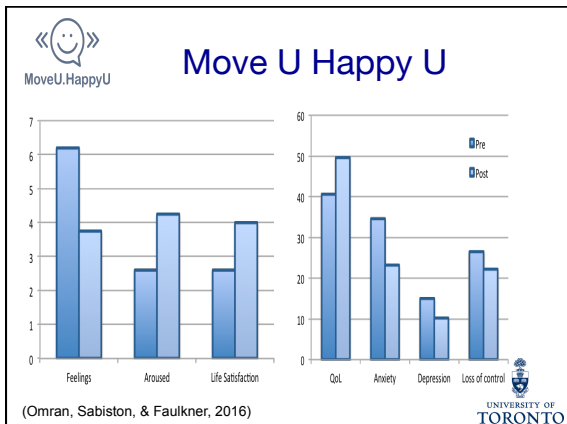
(Michie et al., 2013) <http://www.bct-taxonomy.com>

Move U Happy U

MoveU.HappyU

- **Behavioural counseling and exercise intervention**
 - Student health services referral
- **How is the program tailored?**
 - a needs assessment conducted for each student
 - provided with *choice* and selection of *adaptable* behaviour change strategies
 - 6 weeks in duration to fit
 - address common barriers and integration into the Athletic Centre
 - self-selected intensity and type of exercise
 - one-on-one exercise session rather than group-based

(Omran et al., 2016)



Final Thoughts

- Physical activity has immediate and long-term impacts on mental health
 - Prevention
 - Treatment
- Challenge how physical activity is prescribed in primary care for mental health benefits
- Building choice and adaptability into practice

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