Managing Exercise and Activity and associated risks, in patients with AN and BN

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Physiotherapy in Eating Disorders Network

- Affiliated to CPMH
- Group of Physiotherapists all working in SEDUs in England and Scotland (part time of WTE)
- Adult and Adolescent services
- Meet 3 times a year
- Spoke at congress 2003, since seen a growth in the group and it's aims
- Production of Guidance notes and articles and possibility of our book are ongoing

Useful Documents and organisations

- Physiotherapy Guidance Notes for Exercise and Physical Activity in Adult Patients with Anorexia Nervosa and Bulimia Nervosa June 2011. (Access through icsp, RCPsych, Google)
- Managing Exercise and Activity with an Eating Disorder (Access via Kate Brown Physiotherapist EDS Cambridge)
- Physiotherapy Guidance Notes for Osteoporosis and Exercise in Anorexia Nervosa and Bulimia Nervosa (Virtually complete by Lynn Hammond)
- **?EDs Assessment form etc/ "pockets" within CPMH website**
- MARSIPAN (Oct 2010 Royal College of Psychiatrists and Royal College of Physicians)
- NOS – All about Osteoporosis, Exercise and Osteoporosis and AN and Osteoporosis
- BEAT

Where you might be asked to treat a patient who has an ED

- SEDU
- General Psychiatry/mental health
- Community
- Medical wards

Eating Disorders

- BMI – Weight (kg) / height (m) squared
- 20-25 normal for women in ED (18.5- 25 cancer research UK)
- **AN : Restricting type+Binge-Eating/purging type**
- AN below 17.5
- Medium risk 13-15
- High risk below 13
- **BN**
- **Binge Eating Disorder**

Health Risks particularly relevant to Physiotherapists

- Re-feeding syndrome
- Re-feeding oedema
- Cardiovascular risks
- Musculo-skeletal risks
- Osteoporosis

Re-feeding syndrome and Exercise

- Potentially fatal cardiac effects
- Occurs when patients who have had their food severely restricted are given large amounts of food via oral, NG feeding or TPN.
- Leads to fluid and electrolyte shifts
- Consequences of which include hypokalaemia (below 3mmol/l), hypophosphataemia (below 0.4mmol/l), hypomagnesaemia and altered glucose metabolism (below 3mmol/l).
- Treatment- Decisions in consultation with physicians in clinical nutrition and nutrition support teams. Initial low calorie feeding, step wise increases as soon as safe, electrolyte and clinical state monitoring and a diet rich in phosphate and low in carbohydrates.

- Always consult with MD teams regarding risks prior to any Physiotherapy. Skeletal and heart muscles require phosphate as does the body for repair. Exercise places unnecessary skeletal demand on phospates, in an already depleted situation, putting the heart at risk.

Re-feeding oedema and Exercise

- **Re-feeding oedema**, a peripheral oedema is common in early stages of re-feeding.
- Often seen in those who had been vomiting or using laxatives prior to admission.
- It resolves within a few weeks spontaneously and rarely needs treatment.
- It must be distinguished from oedema secondary to heart failure.
- A physiotherapy assessment is required if the oedema is affecting function e.g. lifting heavy legs in/out bed, mobility, balance and tissue viability. Mobilising will be dependent upon the MD treatment plan and the patient's physical risk.

Cardiovascular risks

- **Cardiac muscle atrophy**, heart muscle shrinkage, reduced left ventricular mass, reduced contractile force, reduced stroke volume, reduced cardiac output leading to **hypotension**.
- **Sinus bradycardia** due to inadequate dietary intake (high risk below 40)
- **Mitral valve prolapse** (rare due to weakened muscles holding the valve)
- Although low intensity exercise may be possible, CO may not be adequate for the body's needs at a higher intensity. Exercising may place extreme stress upon the cardiac system and may increase the risk of a significant cardiac event. Dizziness and fainting may occur.

Cardiovascular risks and exercise

- **Hypokalaemia** (low potassium, less than 3mmol/L and especially sudden depletion) due to dieting, dehydration and purging behaviours (vomiting, use of laxatives, diuretics) can lead to **arrhythmias**.
- Patients should not be exercising . Seek medical advice.
- Patients will have oral replacements and electrolytes should be tested regularly.
- **Hypoglycaemia** (low blood glucose less than 3mmol/L) a consequence of inadequate dietary intake, a starved state and demands from exercise.

Musculo-skeletal System

- As BMI reduces the muscle mass and muscle strength reduces

SUSS test Sit up- Squat-Stand test used in EDs

- Sit-up from lying
- Rises from squat
- 0: unable
- 1: Able only using hands to help
- 2: Able with noticeable difficulty
- 3: Able with no difficulty

Musculo-skeletal risks and Exercise

- Inadequate dietary intake and weight loss leads to significant reduction of muscle mass and strength, reducing support around joints.
- Exercising upon these weakened and vulnerable joints can lead to **joint damage** and ultimately **degenerative changes**.
- Possible higher incidence of **RSI** due to the often rigid and repetitive nature of exercise upon a weakened musculo-skeletal system.
- **Soft tissue injuries** from muscle fragility due to low weight, continued exercise and poor nutrition for healing.

Musculo-skeletal risks and Exercise

- **Postural difficulties** , **pain** and **risk of inj**ury from poor musculo-skeletal stability, including the core muscles.
- **Stress fractures** from repeated impact (associated with compulsive exercise) upon fragile bones.
- **Metatarsal heads** can become **painful and vulnerable to fracture** at low weight, due to changes in plantar fascia. It is advisable to suggest cushioned footwear when active.
- **Osteoporotic/fragility fractures** due to low bone density especially when exercising inappropriately. Spine, wrists and hips and stress fractures in lower legs and feet.

Osteoporosis

- **Osteoporosis** is a common complication in AN.
- Below -2.5 osteoporosis, -1.0 to -2.5 osteopenia DXA scan
- The body changes its hormone production in response to low body weight (lowering oestrogen and IGF1) and these changes reduce bone density.
- Lack of adequate nutrition contributes to the cause.
- Weight restoration is overwhelmingly the biggest piece of the jigsaw for protecting bones.

Osteoporosis and exercise

- Many young people with AN have osteoporosis and may sustain fragility fractures at a much younger age than is seen in average women.
- Preventing these fractures is vital for future health.
- **So we must teach our patients what to avoid, in terms of movements, activities and exercise.**

What to avoid

- The advice is dependent upon the degree of osteoporosis, whether there have been any fragility fractures and health.
- **High impact exercises** such as jumping, running
- **Exercise and activities that increase the risk of falling** such as horse riding, skiing, ice-skating
- **Contact sports**
- **Exercises in which you bend forwards** especially touching toes in standing, sit-ups and crunches
- **Spinal flexion combined with twisting**
- **Take extra care when lifting, moving and handling**

Osteoporosis and Exercise

- Although exercise is known to have a beneficial effect on bone mineral density at a healthy weight, studies are conflicting and it cannot be said that exercise in those with AN is beneficial to bone density . If exercise contributes to further weight loss then the overall result will be detrimental to bone density.
- **So weight restoration is our aim and we cannot tell our patients that exercising whilst underweight is beneficial.**
- **However if exercise, appropriate to BMI, helps with the ongoing weight restoration programme or if they continue to exercise anyway, then specific bone stimulating exercise (proven in the healthy weight population) would be the best advise. These exercises will be helpful once weight is restored.**
- **Manage compulsive exercise if it is a problem.**

Recommended bone stimulating exercises

- The types of activities recommended for people at high risk of fracture include:
- **Strength-training** exercises (exercises using body weight as resistance), especially for the back, plus hips, wrists, pelvic floor, core, foot and ankle.
- **Weight-bearing** low to medium impact.
- **Flexibility** exercises.
- **Stability and balance** exercises to reduce the risk of falling.
- **Classes** with controlled movements, Pilates and Tai chi.

Role of Physiotherapy in relation to exercise in EDs

- **Dysfunctional exercise behaviour is a common feature in Eating Disorder patients.**

- 1. Promote exercise in the context of a healthy lifestyle (physiological and psychological wellbeing)
- 2. Help patients to stop or reduce excessive/compulsive exercise behaviour
- 3. Make recommendations on appropriate levels of physical activity and exercise (BMI related guidelines)
- Advise on and treat musculo-skeletal problems
- **Whilst keeping in mind the necessary programme of weight restoration, the patients BMI and their physical health.**

Compulsive Exercise

- Any form of exercise or physical activity associated with disordered eating attitudes, beliefs and behaviours,
- with an inability or unwillingness to cut down or stop exercising even though it is detrimental to health.

- When exercise and activity becomes compulsive the health benefits are lost and the exercise becomes more harmful to the body than helpful.

Classification

Physical activity (any movements that exert muscles) includes:

- ADL
- Occupational activities
- Recreational activities
- Play
- Sport
- Exercise

Classification

Physical activity and exercise may be:

- **Planned and structured** such as sport, gym, running
- **Incidental** such as hoovering, shopping, cleaning

Physical activity and exercise may be:

- **OVERT**- Openly and deliberately to burn calories. Solitary and obsessive e.g. running
- **COVERT**-can be rigid strenuous activities in secret e.g. star jumps, or in less obvious ways e.g. always going upstairs on the pretext of fetching things, getting off the bus a stop earlier to walk, or sitting in a way that uses constant muscle contractions
- **PERSISTANT RESTLESSNESS**-highly repetitious movements such as tapping and rocking or pacing and standing for long periods of time (Low levels of leptin at low weight).

Managing Compulsive exercise Behaviour

- Exercise can become a very powerful tool in maintaining an ED because of the strong influence that it can have on weight control.
- It is not possible to become physiologically addicted to exercise but for some the psychological dependence is so strong, it is almost identical to a real addiction.
- It **may require a period of abstinence** and **gentle graded reintroduction** with constant vigilance to keep under control.

Managing Compulsive Exercise

- **A CBT approach** and the use of "**The Tool**" can help identify the individual reasons for compulsively exercising, so that thoughts and behaviours can be challenged and new healthier ways of thinking and behaving can take place.

Managing Compulsive Exercise

- **Educate** patients about what constitutes 'healthy/non-compulsive' exercise.
- **Equip patients with the skills** that will enable them to regain control of their exercise behaviour,
- E.g. using distraction, talking rather than using behaviours to manage feelings, activity diaries, pros and cons lists, goal planning and step by step changes, anxiety management etc
- **Equip patients with knowledge** to help with making healthy choices,
- E.g. leptin, health risks, body composition and fitness etc

BMI related Guidelines

Role is to educate and promote healthy exercise and activity:

- In relation to BMI, physical health and whether dietary intake is sufficient to support an increased activity level.
- Find a healthy balance between activity levels and nutritional intake.

BMI 14 and below

- Exercise is not recommended as weight gain is the main priority
- Specific Physiotherapy treatment and exercises may be prescribed for physical problems such as:
- Mobility difficulties/ difficulty climbing stairs
- Balance impairment /risk of falls
- Postural problems/ pain/ pain caused by OP
- oedema/circulatory problems/ tissue viability

BMI 14 to 15

- Following assessment it may be appropriate to recommend exercises in lying and sitting such as:
- Gentle Pilates
- Stretches
- Relaxation techniques

BMI 15 to 17

- Gradual progression to moderate weight bearing activities
- Sessions monitored and supervised with a measurable time frame
- Preferably in groups, such as:
- Pilates
- Tai Chi
- Yoga (be cautious of some yoga poses)
- Swiss ball

BMI 17 to healthy BMI

- Patients still on a weight restoration programme, so any recommendations must not compromise this
- Group exercises are preferable, social, enjoyable
- Utilize community facilities once a week to begin with
- such as : Badminton/Pilates/dance/swimming
- Assistance with planning amount, time, type, especially if compulsive exercise has been a feature.
- Becoming increasingly active/ fit in with lifestyle

At a healthy weight

- Ongoing support to help patients find a healthy balance between activity levels and nutritional intake
- Adjustments must take into account, physical health, pre-morbid exercise behaviour, occupation, recreation preferences, lifestyle and nutritional balance
- Enjoyable and varied
- Groups or exercising with others
- Learn to respect their bodies, miss sessions
- Have a snack before or after exercise
- Seek help and support if compulsive exercising behaviour returns