

Physical Complications of Abuse of Laxatives, Diuretics and Diet Pills

Compensatory behaviours are commonly reported in individuals with eating disorders. These are behaviours that are used in an attempt to prevent weight gain by 'undoing' the effects of eating (Vanin & Saylor, 1989). Three common methods of compensation are the misuse of laxatives, diuretics, and diet pills.

Food is digested (broken down) in the stomach before entering the small intestine where absorption of nutrients and calories occurs. After this, it travels to the large intestine where remaining water and salts are reabsorbed by the body before being expelled as faecal matter. Laxatives work on the large intestine to assist in the expelling of faecal matter, therefore, by the time it has reached the large intestine, all calories have been absorbed, making it an ineffective way to lose weight (Vanin & Saylor, 1989).

Diuretic pills work on the kidneys to get rid of water from the body by increasing urination (Forney et al, 2016), and so has no effect on the digestive system and how calories are absorbed, therefore also making it an ineffective way to lose weight. Individuals that use laxatives or diuretics may believe that they are an effective way to lose weight because they have seen it results in a weight loss on the scales, however this loss of weight is only due to the temporary fluid loss that laxatives and diuretics cause.

Diet pills are used with the aim of losing weight through suppressing hunger, increasing metabolism, and altering the metabolism or absorption of nutrients from food (Roerig et al, 2003), depending on their ingredients. However, there is very little evidence that diet pills actually work. On the contrary, there is a lot of information around their potential harmful effects, especially seeing as there are no strict regulations about testing products or ingredients for safety or effectiveness, especially when bought from overseas (Australian Government, 2013), or when banned substances are able to be bought from the internet (Burkey, 2005).

Engaging in any of these compensatory behaviours can have adverse effects on overall health and wellbeing and are associated with numerous physical complications.

Physical Complications

Electrolyte disturbance

Frequent use of laxatives and diuretics can result in significant loss of water and electrolytes (Forney et al, 2016). These electrolytes are essential to maintain adequate electrical and nerve impulses in muscles. If these impulses are not regulated in the heart, it can result in cardiac arrhythmias (Vanin & Saylor, 1989). Significantly low levels of electrolytes can also cause weak muscles, seizures, and paralysis in different parts of the body (Baker & Sandle, 1996). Poor electrolyte levels can also cause kidney problems and can impact digestion (Vanin & Saylor, 1989).

Dehydration and Oedema (swelling)

Laxative abuse results in diarrhoea. Diarrhoea is often associated with cramping abdominal pain, nausea, vomiting, and rectal pain may accompany defecation (Baker & Sandle, 1996). Diarrhoea causes loss of water and can lead to severe dehydration as a result of fluid loss from the body (Baker & Sandle, 1996). This can result in muscle weakness, vision difficulties, tremors, and fainting (Baker & Sandle, 1996). Often, medical assistance is needed to rehydrate the body sufficiently and safely.

Alternating periods of dehydration and "rebound" excessive water retention can occur with laxative and diuretic abuse (Vanin & Saylor, 1989; Mehler, 2011). When laxatives and diuretics are stopped abruptly, oedema can be dramatic and weight can increase by several kilograms in a short amount of time (Mitchell & Boutacoff, 1986; Mehler, 2011).

Gastrointestinal disturbance

Prolonged laxative use may produce reflex constipation, because of the large intestine's reliance on stimulant laxatives to evacuate bowel contents (Mitchell & Boutacoff, 1986). This worsens if laxative use continues. Constipation may also occur during withdrawal from laxatives, which makes it difficult to stop laxative abuse. (Vanin & Saylor, 1989)

Laxatives, particularly stimulant-based laxatives, may produce bleeding in the gastrointestinal tract, and if bleeding persists, may cause anaemia (Vanin & Saylor, 1989).

Laxatives can cause extensive damage to the colon, through infection or stretching. Symptoms include gas, bloating, pain, mucous or blood in stool, or the inability to control the bowel (Roerig et al, 2010).

Organ and tissue damage

Laxative and diuretic abuse can also cause kidney damage and prolonged use can lead to renal failure (Roerig et al, 2010; Vanin & Saylor, 1989; Forney et al, 2016).

Bone changes have been reported in patients who abuse laxatives and may result from the loss of vitamin D (Mitchell & Boutacoff, 1986).

Rhabdomyolysis (break down of muscle tissue) is a consequence of electrolyte disturbance and dehydration following diuretic and laxative abuse, and can cause muscle weakness, tender muscles, and dark, tea colored urine (Forney et al, 2016).

Because there are a variety of herbs and non-regulated ingredients in diet pills, it is difficult to list all the possible harmful effects, but the potential damage they can cause on the body's organs and whole body exists (Buckey, 2005).

Cardiovascular Complications

Laxative and diuretic abuse has been associated with seizures and cardiac arrest (Forney et al, 2016).

Diet pills that contain stimulants has been associated with increased blood pressure, heart attacks, seizures, brain bleeds, psychiatric problems, and strokes (Burkey, 2005).

Psychiatric Complications

Anxiety, hallucinations, and severe depression are some of the long-term effects of stimulant-based diet pill abuse (Buckey, 2005).

Dependency

People can become dependent on laxatives, diet pills, and diuretics after heavy use over an extended period of time (Mitchell & Boutacoff, 1986; Mehler, 2011, Buckey, 2005). This can result in the body no longer responding to the recommended dosage, and higher amounts are required to achieve the same effect (Mitchell & Boutacoff, 1986; Mehler, 2011). This often results in dangerous and excessive use, which can result in all of the physical complications described previously.

Australian Government Department of Health and Aged Care Therapeutic Goods Administration. (2013). An Overview of the Regulation of Complementary Medicines in Australia. [online] Available at: <https://www.tga.gov.au/overview-regulation-complementary-medicines-australia> [Accessed 14 Sep. 2022]

Baker, E.H., & Sandle, G.I. (1996). Complications of Laxative Abuse. *Annual Review of Medicine*, 47(1), 127-134. doi: 10.1146/annurev.med.47.1.127

Forney, K. J., Buchmann-Schmitt, J. M., Keel, P. K., & Frank, G. K. W. (2016). The Medical Complications Associated with Purging. *International Journal of Eating Disorders*, 49(3): 249-259. doi:10.1002/eat.22504

Mehler, P. S. (2011). Medical Complications of Bulimia Nervosa and Their Treatments. *International Journal of Eating Disorders*, 44, 95-104. doi: 10.1002/eat.20825

Mitchell, J. E., & Boutacoff, L. I. (1986). Laxative Abuse Complicating Bulimia: Medical and Treatment Implications. *International Journal of Eating Disorders*, 5(2), 325-334. doi: 10.1002/1098-108X(198602)5:2<325::AID-EAT2260050211>3.0.CO;2-Z

Roerig, J. L., Mitchell, J. E., de Zwaan, M., Wonderlich, S. A., Kamran, S., Engbloom, S., Burgard, M., & Lancaster, K. (2003). The Eating Disorders Medicine Cabinet Revisited: A Clinician's Guide to Appetite Suppressants and Diuretics. *International Journal of Eating Disorders*, 33, 443-457. doi: 10.1002/eat.10159

Roerig, J. L., Steffen, K. J., Mitchell, J. E., & Zunker, C. (2010). Laxative Abuse: Epidemiology, Diagnosis and Management. *Drugs*, 70(12), 1487-503. doi: 10.2165/11898640-000000000-00000

Vanin, J. R., & Saylor, K. E. (1989). Laxative Abuse: A Hazardous Habit for Weight Control. *Journal of American College Health*, 37(5), 227-230. doi: 10.1080/07448481.1989.9939064