

SCI & WEIGHT GAIN

Obesity affects over 60% of people spinal cord injuries. This condition is strongly correlated with the development of other health conditions such as cardiovascular disease, diabetes and high blood pressure.

There are a number of factors which contribute to weight gain for people with spinal cord injuries:

- post-injury metabolism slows approximately 14 to 27%. The interrupted neural connectivity to the musculoskeletal system causes metabolic rates to be lower than pre-injury rates. Additionally, some medications, such as narcotics, have the potential to decrease resting metabolic rates
- calorie needs and ideal body weight decrease after spinal cord injuries due to decreased activity and loss of muscle tissue. It is believed that a decrease in lean muscle mass and increase in adipose tissue following a spinal cord injury can also lead to impaired glucose uptake.

It is recommended:

- **paraplegia:** 28 cal/kg of *ideal* body weight/day (adjusted BMI is 10 - 15 pounds less than *ideal* pre-injury weight)
- **tetraplegia:** 23 cal/kg of *ideal* body weight/day (adjusted BMI is 15 - 20 pounds less than *ideal* pre-injury weight)
- despite caloric needs being reduced after injury, - many people continue pre-injury eating habits and portion sizes
- weight is also greatly affected by the balance and signaling of hormones such as insulin and cortisol. The physical trauma of a spinal injury and the associated emotional and mental stress can cause excessive release of hormones such as cortisol, which in turn can disrupt hormone balances and contribute to increases in blood sugar levels, insulin resistance and weight gain.

RECOMMENDATIONS FOR WEIGHT LOSS

1. Reduce Total Calorie Intake

- **see calculations above and recommended eating pattern & serving sizes below**

2. Stabilize Blood Sugar Levels

- this will reduce cravings, maintain energy levels, and reduce spikes in cortisol which contributes to abdominal fat. This should be done by having a **low glycemic diet**, eating **four to five (see recommended eating pattern & serving sizes below)** meals a day
- increase protein – stimulates many of our fat burning and appetite controlling hormones, when consumed before or after workouts protein increases growth hormone release to stimulate muscle growth, tissue repair and fat burning. Protein (once broken down into amino acids) also helps build hormones such as serotonin, melatonin, growth hormone, thyroid hormone and dopamine.
- eat good complex carbohydrates – the body needs carbohydrates, particularly the brain and muscles. All carbohydrates, good or bad, are broken down to their smallest component glucose aka sugar. Good carbohydrates, such as legumes and vegetables however get broken down slower and in smaller amounts so as to maintain a fairly consist blood sugar levels. Bad carbohydrates, such as refined white bread, doughnuts & French fries cause massive surges of sugar into the blood stream over a very short time period and spike massive increases in insulin release.

3. Fibre Supplement

- 1 tbsp whole husk psyllium or ground flax seed/day
- helps give a sense of fullness so reduces chances of overeating and unnecessary snacking. Fibre helps to stabilise blood sugars, lower cholesterol and improve hormonal balance. It also increases metabolism and enables hormones to be balanced for fat loss
- also helps eliminate toxins from the body. Accumulation of toxins can interfere with hormones, neurotransmitters and nervous system activity, resulting in weight gain and various health problems. Many toxins are endocrine blockers, which mean they disrupt our hormones and increase fat storage.

4. Consume Healthy Fats

- 2-4 tbsp (capsules) omega-3 fatty acids or flax oil/day
- good fats help burn bad fats
- the body needs fats and cholesterol in the diet as they help create the sensation of satisfaction, reduce cravings and help to lose weight. Fats help build hormones such as estrogen, progesterone, testosterone and cortisol.
- healthy fats found in salmon, avocado, olives, olive oil, walnuts and almonds are nutrient dense and keep your cravings and appetite at bay.

5. Chromium Picolinate Supplement

- 100-200 mcg/day
- chromium is an essential and naturally occurring trace mineral that helps maintain stable blood sugar levels through proper insulin sensitivity and utilization.
- modern day farming practices and food processing methods deplete chromium in our foods

LIFESTYLE RECOMMENDATION

1. Maximize Quality and Quantity of Sleep

- this helps to restore hormonal imbalances which, controls appetite (decrease cravings for high calorie and sugar foods) and increase your metabolism, which contributes to fat loss.
- sleep is the time when your body rebuilds cells, especially muscles, bones and skin. Growth hormone is released when you are in deep sleep which is a hormone that helps with fat loss.

2. Reduce Stress

- practice stress reducing activities such as, your favorite form of exercise, yoga or meditation
- stress increases the release of cortisol which increases abdominal fat, causes blood sugar levels to become unstable, and contributes to poor sleep. High cortisol levels interfere with almost every other hormone involved in metabolism regulation, appetite control and fat burning.

REFERENCES

1. Lawrence Johnston **Alternative Medicine and SCI** 2006
2. Lynette Jones **Healthy Body Mass Index Values Often Under Estimated in Body Fat and Men with SCI** 2003
3. Ann Spungen 2003 **Factors Influencing Body Composition in Persons with SCI** 2003
4. Natascha Turner N.D. **The Hormone Diet** Random House 2009

RECOMMENDED EATING PATTERN

BREAKFAST	SNACK	LUNCH	SNACK	DINNER
Eat within 1 hr of waking	2-3 hrs after breakfast fruit, veg or protein	Complex Carb meal or protein with veg	2-3 hrs later fruit, veg or protein	Complex Carb meal or protein with veg

- eating 4- 5 small meals a day increases digestive & bowel function
- eating a diet high protein and complex carbohydrates helps maintain blood sugar levels and sustain energy
- eat plain, organic yogurt as a snack. The probiotics help increase bowl function
- chew food thoroughly and slowly = helps digestion and absorption of food
- drink 1.5-2 Litres of water every day(with fresh squeezed lemon or lime)
- do not eat 2 hours before going to bed = decreases digestion & interferes with sleep

RECOMMENDED SERVING PORTIONS/DAY

FOOD	AMOUNT
Vegetables	5-10 servings (minimum 5), 1 serving = size 1 baseball
Meat – chicken, fish, beef, eggs	3 servings, 1 serving = palm of hand
Legumes (Beans, lentil & peas)	1 ½ - 2 cups
Nuts & Seeds	1-2 servings, 1 serving = golf ball (10-12 nuts)
Pasta, rice, bread & cereal	1 cup or 1 slice of bread
Fruit	1-2 servings, 1 serving =1 baseball
Good fats (eg. fish oils)	2-4 tbsp
Fluids	Minimum 6-8 cups