Explain both safe and potentially harmful training procedures related to TWO training types. (8)

Both aerobic and flexibility training require numerous procedures to be considered to reduce the risk of injury to athletes.

**Flexibility training** involves stretching to increase muscle length, elasticity and range of movement through static, ballistic or dynamic exercises. To achieve this safely, athletes must perform thorough warm-ups and avoid stretching to the point of pain. Ensuring that an athlete is warmed up properly before stretching reduces the risk of injury, as adequate blood flow to the muscles increases their elasticity, lessening the chance that tears will occur. For example, a gymnast may complete a light jog around the perimeter of their gym for 5 minutes, then move into dynamic stretching e.g. high knees and leg swings, before beginning static stretching e.g. the sit and reach. Additionally, to promote safety, athletes should only stretch to the point of discomfort to prevent injury from overstretching, as pain is an indicator that the body is being pushed too far. Harmful training procedures for flexibility include bouncing and imbalanced stretching. Bouncing initiates the stretch reflex, causing the muscle to contract and increasing the risk of muscle tears. Ballistic stretches e.g. touching the toes using a bouncing motion should therefore only be used by elite athletes under supervision. Moreover, only focusing on one side of the body when stretching can cause an imbalance in the body, leading to injuries - for example, if a soccer player focused mainly on flexibility in their dominant leg, the body may overextend itself when using the other leg that is not adapted to greater demands, resulting in a strain or sprain.

**Aerobic training** develops the aerobic system of energy supply through continuous, Fartlek, and long interval training. Although the level of intensity for this type of training is not usually high, its duration and repetitive nature can lead to overuse injuries e.g. shin splints. Safe procedures to prevent this include slow progressive overload and cross-training. Athletes should be subject to progressive overload increases in a controlled manner, e.g. increasing the intensity of exercise from 65% MHR to 70% MHR, or increasing the duration of exercise from 4 minutes to 5 minutes, but not both at the same time as this can lead to injury from excessively stressing the body e.g. stress fractures in the ankle. Cross training e.g. switching from running laps to swimming laps safely provides variety in exercise and loads different muscle groups, reducing the chances that an overuse injury will occur. Harmful procedures include ineffective warm up and overtraining, which greatly increase the risk of injury. Warm up e.g. jogging followed by dynamic stretches is essential to redirect blood flow to the working muscles and increase muscle temperature. Failure to warm up correctly will result in the muscles remaining inelastic and unable to cope with the demands of exercise, increasing the risk of tears. Lastly, overtraining caused by inadequate rest days or failing to include variety in training can lead to injuries caused by lethargy... etc.