Ask the Expert with Dr. Darrell Menard

Find Answers to your Sport Medicine Questions!

Blood Flow Restricted Training – what's that?

Q: *I enjoy weight training and have made significant gains over the last 6 years. I'm always looking for new training strategies and while on holiday I was introduced to something called 'blood flow restricted training'. Have you heard of this type of training and could you comment as to whether it works and is safe?*

A: Blood flow restricted (BFR) training is also called occlusion or Kaatsu training and has been around for many years. Its claim to fame is allowing people to make training gains doing low resistance exercise.

BFR training involves using a tourniquet to restrict blood flow to the arms or legs. The pressure to the limb must be strong enough to stop the return of venous blood from the constricted limb but not strong enough to stop arterial blood flow. This can be difficult to achieve as the desired pressure is highly variable between individuals. With the limb constricted, the person performs resistance exercises at 20-30% of their 1 repetition maximum. People typically do 3 sets of 20-30 repetitions at this low resistance. The theory is that doing low intensity training with restricted blood flow allows people to make the same training gains they would get from doing high intensity training.

Does BFR training work? For people like yourself who can do higher intensity training, the research clearly shows BFR training offers no advantage and may even be less effective than high intensity training. Some rehabilitation programs have used BFR training and found it helpful for people for whom disease or disability restricts their ability to do higher intensity training with their arms or legs.

Is BFR training safe? Very little research has been done regarding the safety of BFR training but there are some significant concerns:

1. Reducing blood flow to working muscles activates a reflex that can put people with high blood pressure, heart or vascular disease or poor circulation at increased risk of having abnormal heart rates, heart attack, stroke and sudden death. This is concerning because many people may have these underlying medical conditions and are not aware of it.

2. We have no idea if there are potential health risks from the long term use of BFR training.

3. There is no standardized way to determine the ideal constricting pressure for anyone doing BFR training. Using excessive pressures could damage blood vessels, muscles and tendons and could also trigger potentially life threatening blood clots.

4. The BFR training approach is not recommended for people with the following conditions: pregnancy, a history of blood clots, poor arm and leg circulation, varicose veins, hypertension, heart disease, lymph node removal in the limbs, abnormal heart rates and people who are on medications that may increase the risk of clotting.

The bottom line: BFR training will likely not be helpful for you and there remain uncertainties about its safety. There are potentially dangerous cardiovascular responses to this training technique and as such, further research is needed to determine if it can be performed safely by people restricted from high intensity training due to disease or disability. Train smart - Exercise is medicine in motion!

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