11. SUMMARY

Visceral adiposity per se linked with risk of developing hypertension in future. There is escalating trend of central obesity in Indian Adolescents. Nevertheless, the Asian Indian population is known to have a tendency for central fat deposition than peripheral fat. Since, the association of visceral adiposity and cardiovascular response to exercise in Indian adolescents of 18-19 years’ age group has not been reported so far. The current study was primarily undertaken to know the association of Visceral Fat (VF) and cardiovascular responses during treadmill exercise stress test in both genders of Indian adolescents of 18-19 years of age group. The secondary objective of the study was to compare the effects of visceral and total adiposity on cardiovascular reactivity to exercise stress in them. Our study was conducted on 120 healthy, non-athletes’ Indian adolescents (60 males and 60 females) of 18-19 years of age group from various colleges after their written voluntary consent. VF was recorded by bioelectrical impedance method by mean of Omron body fat analyzer. All the participants were customized into two groups with respect to their visceral fat level. Participants with VF 0 to 9 were categorized as normal VF group and participants with VF >9 were categorized as a high VF group. Participants had performed submaximal treadmill exercise stress test by the standard Bruce Protocol. Cardiovascular reactivity (Heart Rate, Systolic and Diastolic BP) was checked at the end of each stage of Bruce Protocol. They were asked to continue exercising until they reached 85% of their age adjusted predicted maximum heart rate or on the basis of exercise end points. Perceived exertion was recorded using Borg’s scale. Blood pressure and heart rate recovery were checked at 2nd, 4th and 6th minutes after the exercise. Our study concluded that during the treadmill exercise stress test, high blood
pressure reactivity was seen in high VF adolescents as compared to normal VF adolescents primarily due to their high basal BP. Male adolescents were more physically active than female adolescents in our study. Adolescents with high VF were able to cross less number of Bruce stages than normal VF adolescents. VO$_{2\text{max}}$ was considerably less in high VF adolescents compared to normal VF adolescents. Post exercise recovery was delayed in high VF adolescents compared to normal VF adolescents. Moreover, VF had a stronger influence on cardiovascular parameters than total body fat.