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Tailored Exercise Prescription in Adolescent Obesity Complicated by Juvenile Arthritis and Retinal Detachment

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Introduction:

Obesity management in adolescents becomes significantly more complex when accompanied by chronic inflammatory disease and ocular pathology. Although physical activity is a central component of obesity treatment, conditions such as juvenile idiopathic arthritis (JIA) and retinal detachment impose important safety constraints that may limit conventional exercise approaches. This case illustrates the challenges and clinical considerations in delivering safe, effective, and engaging exercise therapy under such circumstances.

Case Presentation:

A 16-year-old male with morbid obesity (BMI 32 kg/m², >97th centile) was referred for exercise-based weight management. His medical history included JIA requiring prolonged corticosteroid therapy, dyslipidaemia, and a recent surgically treated rhegmatogenous retinal detachment. Following ophthalmological advice to avoid contact and high-intensity sports, he discontinued activities he previously enjoyed, leading to rapid weight gain and reduced motivation. Clinical assessment revealed features of insulin resistance, but JIA was in remission with preserved joint function.

Results:

A personalised exercise prescription was developed, prioritising metabolic benefit while minimising ocular and musculoskeletal risk. The programme emphasised low-impact, non-contact aerobic activity performed in short, frequent bouts, progressing towards a cumulative target of 60 minutes daily. Careful supervision of resistance training avoided the Valsalva manoeuvre and excessive joint loading. Modified football-based drills were incorporated in a controlled setting to maintain motivation and adherence.

Conclusion:

This case highlights the importance of individualised, safety-focused exercise prescription in adolescent obesity complicated by inflammatory and ocular comorbidities. Thoughtful adaptation of physical activity can support effective weight management, reduce metabolic risk, and promote long-term adherence without compromising clinical safety.