




**Physical health in females fitness athletes;  
*symptoms of relative energy deficiency in sport (RED-s)***


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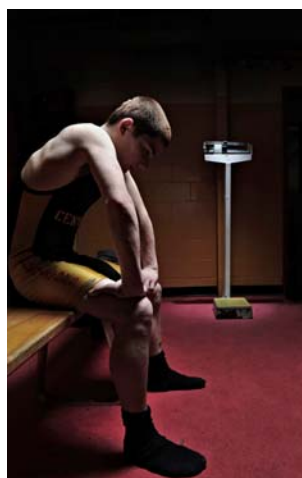
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## Weight management by athletes

- Skipping meals
  - Sporadic eating
  - Fasting
  - Diuretics / laxatives
  - Sweat suits
  - Sauna
  - Restricting fluids
  - Spitting
  - Vomiting
- Jockeys
  - Combat sport / martial arts
    - Tae Kwon doe
    - Judo
    - Wrestling
    - Boxing
  - Rowers
  - Gymnasts

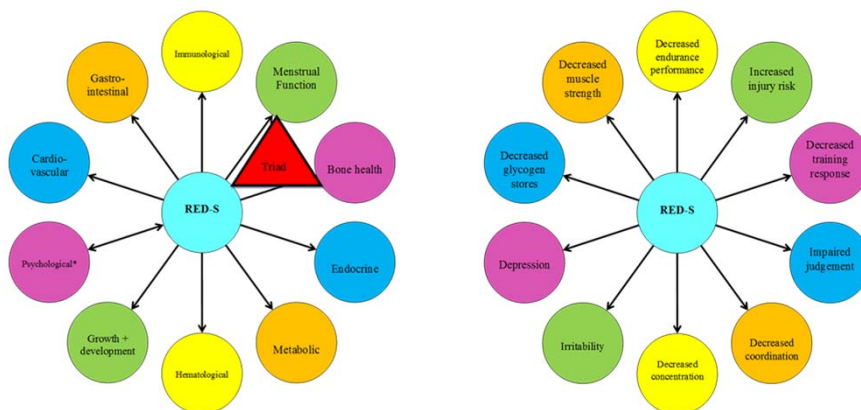


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## Relative energy deficiency in sport, RED-s



Mountjoy, Sundgot-Borgen et al. 2014 *The IOC consensus statement: beyond the female athlete triad – relative energy deficiency in sport (RED-s).*

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Consensus statement



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### How to minimise the health risks to athletes who compete in weight-sensitive sports review and position statement on behalf of the Ad Hoc Research Working Group on Body Composition, Health and Performance, under the auspices of the IOC Medical Commission

Jorunn Sundgot-Borgen,<sup>1</sup> Nanna L Meyer,<sup>2</sup> Timothy G Lohman,<sup>3</sup> Timothy R Ackland,<sup>4</sup> Ronald J Maughan,<sup>5</sup> Arthur D Stewart,<sup>6</sup> Wolfram Müller<sup>7</sup>

**To cite:** Sundgot-Borgen J, Meyer NL, Lohman TG, et al. *Br J Sports Med* 2013;47:1012–1022.

**ABSTRACT**  
A focus on low body weight and body fat content, combined with regulations in some weight-sensitive sports, are considered risk factors for extreme dieting, eating disorders (EDs) and related health consequences

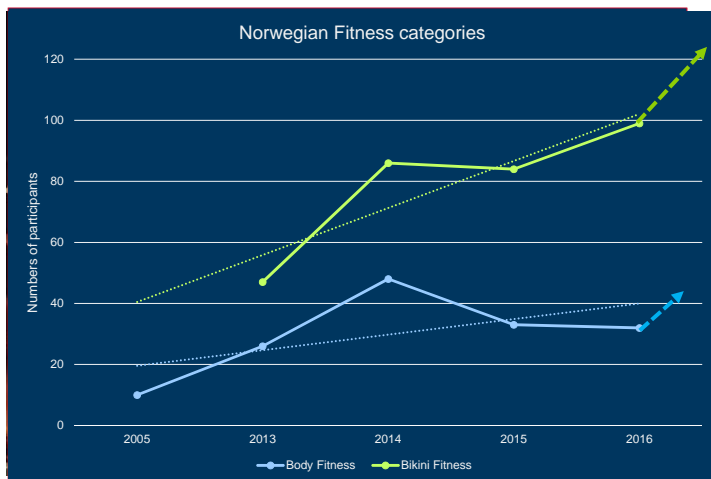
menstrual dysfunction in women.<sup>3</sup> Medical staff, including sports physicians, nutritionists and exercise scientists, experience challenges in handling the issues of optimum body composition, dieting and EDs in elite athletes.<sup>4,5</sup> Furthermore, most

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## "Bikini Fitness to the people"

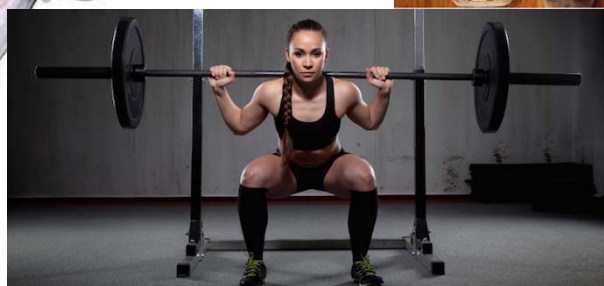


Bikini Fitness



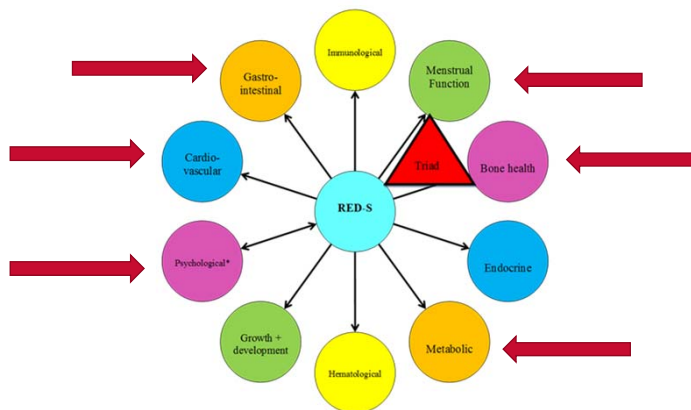
Body Figure

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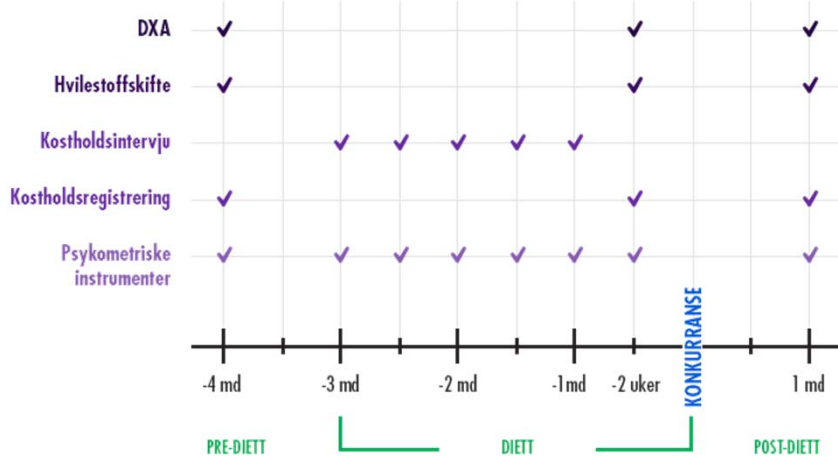
## Relative energy deficiency in sport, RED-s



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## Design



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## Result from recruitment

- FITNESS
- 39 recruited
- 33 baseline
- 23 pre-contest
- 22 post-contest
- Drop out:
  - Failure of dieting
  - Lack of motivation
  - Priority of private affairs
  - Death in family
- Competition results:
  - 8 top 3 in national competitions
  - 1 overall winner in the National Championship
  - 1 European champion (junior)
  - 4 - 15.place
- CONTROL
- 31 recruited
- 28 baseline
- 24 pre-contest
- 24 post-contest



## Descriptive information

	Fitness (n=33)	Control (n=28)	p-value
Age, years	28.4 (5.6)	30.1 (6.1)	0.26
BMI, kg×m <sup>-1</sup>			0.33
Adult BW diff. (kg)			0.85
Lean body mass (kg)			0.15
Body fat percent (%)			0.02



Paper with findings  
is about to be  
submitted!

