

What's the best way to manage athletes with amenorrhea?

Evidence-based answer

Ruling out secondary causes of amenorrhea is, of course, the first step. Once that's done, you can make a presumptive diagnosis of hypothalamic amenorrhea and advise the patient

to increase caloric intake or decrease energy expenditure to promote the return of normal menses (strength of recommendation: **C**, expert consensus).¹

Clinical commentary

I err on the side of hormone supplementation

The menstrual cycle is a finely balanced orchestra of events; amenorrhea means that something is out of tune. In athletes, amenorrhea signals that the body is sacrificing the menses to provide energy for more important daily functions.²

Because of the potential negative long-term consequences of hypoestrogenism, I err on the side of hormone supplementation while encouraging the patient to modify her eating pattern and exercise routine to

promote the return of menses. For women who desire birth control, I use hormonal contraception.

If pregnancy is not a concern, I prefer to cycle the patient on low-dose estradiol and progesterone that are chemically identical to her own hormones. I believe this gently prods the body's own hypothalamic-pituitary axis (HPA) to re-engage without overriding the internal HPA-ovarian drive.

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FAST TRACK

All female athletes with amenorrhea should have a pregnancy test, because pregnancy is the most common cause of secondary amenorrhea

Evidence summary

Little evidence and no specific guidelines exist to guide the clinician in evaluating and managing exercise-induced amenorrhea. All athletes with amenorrhea should have a pregnancy test, because pregnancy is the most common cause of secondary amenorrhea.¹ After ruling it out, the clinician may choose to exclude other causes of secondary amenorrhea before presuming a diagnosis of hypothalamic amenorrhea.

Useful tests (**TABLE**) include:

- serum prolactin to rule out prolactinoma
- follicle-stimulating hormone to rule out premature ovarian failure
- thyroid-stimulating hormone to evaluate for thyroid problems.

If all these tests are negative, consider a progesterone challenge test.³ Typically, athletes with hypothalamic amenorrhea don't experience withdrawal bleeding after progesterone challenge, because of inadequate endogenous estrogen stimulation.

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TABLE

Is it hypothalamic amenorrhea, or something else?

DIFFERENTIAL DIAGNOSIS	CLINICAL CLUES	POTENTIALLY USEFUL TEST
Pregnancy	Sexual history	Urine hCG
Polycystic ovary syndrome	Obesity, hirsutism	Progesterone challenge
Ovarian failure	Family history	Serum FSH
Thyroid dysfunction	Physical exam, history	Serum TSH
Prolactinoma, psychiatric medications	Galactorrhea	Serum prolactin
Asherman's syndrome	History of pelvic instrumentation	Estrogen/progesterone challenge

FSH, follicle-stimulating hormone; hCG, human chorionic gonadotropin; TSH, thyroid-stimulating hormone.

FAST TRACK

The potential negative effects of hypothalamic amenorrhea, such as bone loss, are best prevented with measures to restore menses, specifically increased caloric intake and decreased exercise

Greater caloric and micronutrient intake—plus rest—is best

A 1999 study in the *International Journal of Sport Nutrition* found that chronic energy deficit in amenorrheic athletes (N=4) could be reversed in a 20-week program using a sport nutrition supplement, 1 rest day per week, and a dietician to help with food selection.⁴ A 2002 review similarly recommends 1 rest day per week, increasing caloric intake by 200 to 300 Kcal/d, and increasing intake of calcium, B vitamins, iron, and zinc.⁵

Oral contraceptives to prevent bone loss? Too little information

Bone loss in amenorrheic athletes may have long-term consequences, even if amenorrhea is only temporary. Some theoretical and disease-based research suggests a possible role for oral contraceptives to prevent bone loss in pre- and postmenopausal women,⁶ but little research has investigated younger women with hypothalamic amenorrhea. A recent open-label study that did examine bone mineral density (BMD) in women with hypothalamic amenorrhea before and after 13 cycles of oral contraceptives found a significant increase in BMD in the spine, but not at the hip.⁷

No published study has demonstrated clinically significant advantages for oral contraceptive therapy in wom-

en with secondary amenorrhea. These women should take adequate calcium and vitamin D. Bisphosphonates are not appropriate for women of reproductive age, because of their potential teratogenicity.¹

Recommendations

The Committee on Sports Medicine and Fitness of the American Academy of Pediatrics (AAP) encourages exercise to help maintain lean body mass and protect against obesity, diabetes, hypertension, and cardiovascular disease. Athletes with amenorrhea, however, may be at risk for sequelae such as osteopenia, fractures, and dyslipidemia. Amenorrhea during adolescence may inhibit the accretion of BMD, and the lost density may not be regained. Amenorrheic athletes are also at risk for the “female athlete triad”—disordered eating, amenorrhea, and osteoporosis.⁸

The potential negative sequelae of amenorrhea are best prevented with measures that restore physiologic menses.³ For exercise-induced hypothalamic bone loss, the AAP recommends decreased exercise, increased caloric intake, or both. ■

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