



# Appearance-enhancing drugs

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Is this new?



*Anima sana in corpore sano*  
(in English: healthy mind in a healthy body)

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Is this new?

In fact, the ancient greeks and romans popularised the idea of gyms - from the greek *gymnós* = exercising naked - that also employed ancient pharmacists and physiotherapists;



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## What went wrong?

Eventually, there was a shift in focus: the point was to become harder, better, faster, stronger, not (just) healthy, and with these pressures came the “need” for shortcuts;

Then, there are the professional pressures:

Ballet dancers, for example, are now required to dance for longer, in more complex roles with more physically taxing moves;



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## What went wrong?

Then, there's social media and fashion:

- As physical attributes such as weight, height and BMI are scrutinised under social standards of health and attractiveness, body perceptions are warped and psychology well-being can suffer (e.g., de Valle et al., 2021; Merino et al., 2024);

The “solution” for all of this? Drugs, injections, operations, adhesion to unhealthy or unnecessary trends in nutrition among other factors.



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# What are appearance-enhancing drugs?

## PIEDs - *Performance and Image Enhancing Drugs*

This concept goes beyond sports and exercise - people may want to improve their bodies as a means of increasing performance, but also to achieve aesthetic, social, cultural, and professional goals;

Includes cognitive stimulants for studying, anabolic steroids to increase muscle hypertrophy, dietary supplements to maintain a desired physique...



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## Categories of PIEDs

- Traditional doping agents;
- Substances with direct effects on body image;
- Dietary supplements.



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## Traditional doping agents

These include:

- **Androgenic steroids** - which promote muscle growth and rapid recovery;
- **Growth hormone** - used to reduce body fat and increase lean mass;
- **Erythropoietin**, which increases blood's oxygen-carrying capacity;
- **Stimulants** such as ephedrine and amphetamines used to boost focus and endurance.

Many are on the World Anti-Doping Agency banned list but continue to be used.



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## Substances related to body image

These include:

- **Anabolic steroids** used outside competitive sports;
- **Diuretics** to reduce water retention and enhance muscle definition;
- **Laxatives** for rapid weight loss;
- **Appetite suppressants** such as sibutramine, banned in several countries (but not in Brazil, etc.);

**The focus is less on performance but more on appearance**, often influenced by unrealistic body ideals.



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## Dietary supplements

They occupy an ambiguous space:

They are legal, meant to complement nutrition - whey protein, creatine, caffeine, beta-alanine, etc;

However, they are poorly regulated, and some have unclear compositions or are even contaminated;

Psychologically, supplements act as **markers of commitment** to the ideal body - used not because of their effects, but as a ritual in body-focused circles.



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## PIEDs and motivation

PIEDs rarely follow a purely instrumental logic: **there is a deep emotional dimension** tied to the desire to alter the body;

PEIDs consumption is correlated with feelings of bodily inadequacy, low self-esteem, or even erroneous perceptions muscle dysmorphia;

Others use PIEDs as a form of psychological compensation after experiences of bullying, relational failure, and performance pressure (either in sports, sexuality or even professional life).

There is also a communal dimension.



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But... are they  
doping?

Doping is defined as the **use of prohibited substances** or methods with the intention of enhancing athletic performance, **violating rules** and regulations;

The use of substances for aesthetic or non-regulated purposes is not, in itself, considered doping: specially when much of PIEDs usage occurs outside of sports, and therefore poorly regulated;

Then... are they OK to use?



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## Are PIEDs safe?

There is a growing normalisation of these substances, especially among young adults;

The usage of Selective Androgen Receptor Modulators (SARMs), synthetic peptides, and hormone micro dosing are oftentimes based on non-scientific forums;

The risks are significant: hepatotoxicity, infertility, gynecomastia, cardiovascular changes, testicular atrophy, severe acne and, even, death.

There is also reports of psychological dependence, irritability, impulsivity, etc.



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So... what can we  
do about it?

We must go beyond prohibition, control, and punishment;

Regulation is important, but they overlook users' subjective motivations;

It is important to invest in critical education about the body, health, and appearance from an early age;

Psychosocial interventions should promote self-esteem, foster critical thinking about imposed body ideals, offer support, and create socially valued alternatives for identity construction.



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Now let's look at some cases!

# Protein products

There are some performance benefits in using protein products, namely increase of muscle mass and strength (up to 1.6g/kg/day) and decrease in recovery time (Cermak, 2012);

However, most people do not need protein supplements - the average gym goer, for example, does not exercise enough to gain any benefits (Morton et al., 2017);

Worse, the use of dietary supplements is linked to an increase in permissive attitudes towards doping (Yager & O'dea, 2014).



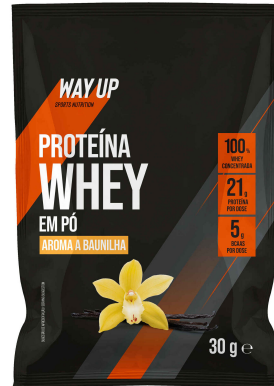
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# Protein products

Some evidence that intakes of more than 1.5g/kg/day have detrimental effects (homeostasis, renal function, liver function, coronary heart disease) (Delimaris, 2013);

For a 70 kg individual this equates to “just” 105g/day.



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## Anna, 25 years-old

Anna trains three times a week at a local gym, with a focus on gaining a moderate amount of muscle. She is a university student, and follows fitness influencers on Instagram and TikTok;

She uses whey protein supplements, casein, and caffeine to gain muscle and increase resistance. She thinks taking supplements is an essential part of “being fit”.

But she already consumes enough protein from her meals and she has no protein deficiency nor does she do high intensity training.



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## Anna, 25 years-old

She believes there are advantages in taking these supplements: she feels she is doing what others do to achieve their fitness goals, and in turn this increases her sense of belonging, her motivation increases, and she becomes more committed to training and sharing her experiences;

However, this has a financial impact in her monthly budget, and is associated with the development of erroneous beliefs about her body image (“if I don’t take these supplements I am not able to have a desirable body”);

If she is unable to achieve her goals, there is a higher risk to transition to more powerful substances.



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# Steven McRae



Photo by Darian  
Volkovo and The  
Royal Ballet



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# Steven McRae

Steven snapped his Achilles tendon during a live performance at the Royal Opera House;

He states that for years he was battling with injuries, and pushed and pushed and ignored all the signs that something worse could happen... “I had been living in a constant state of burnout” and was “greatly under-fuelled”;

He is now one of the more vocal voices advocating for changes in the Ballet world;

Side note: He has increased by a lot his muscle mass and strength and... there were critics saying that he is now a less interesting and less gracious dancer...



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# Thank you!

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