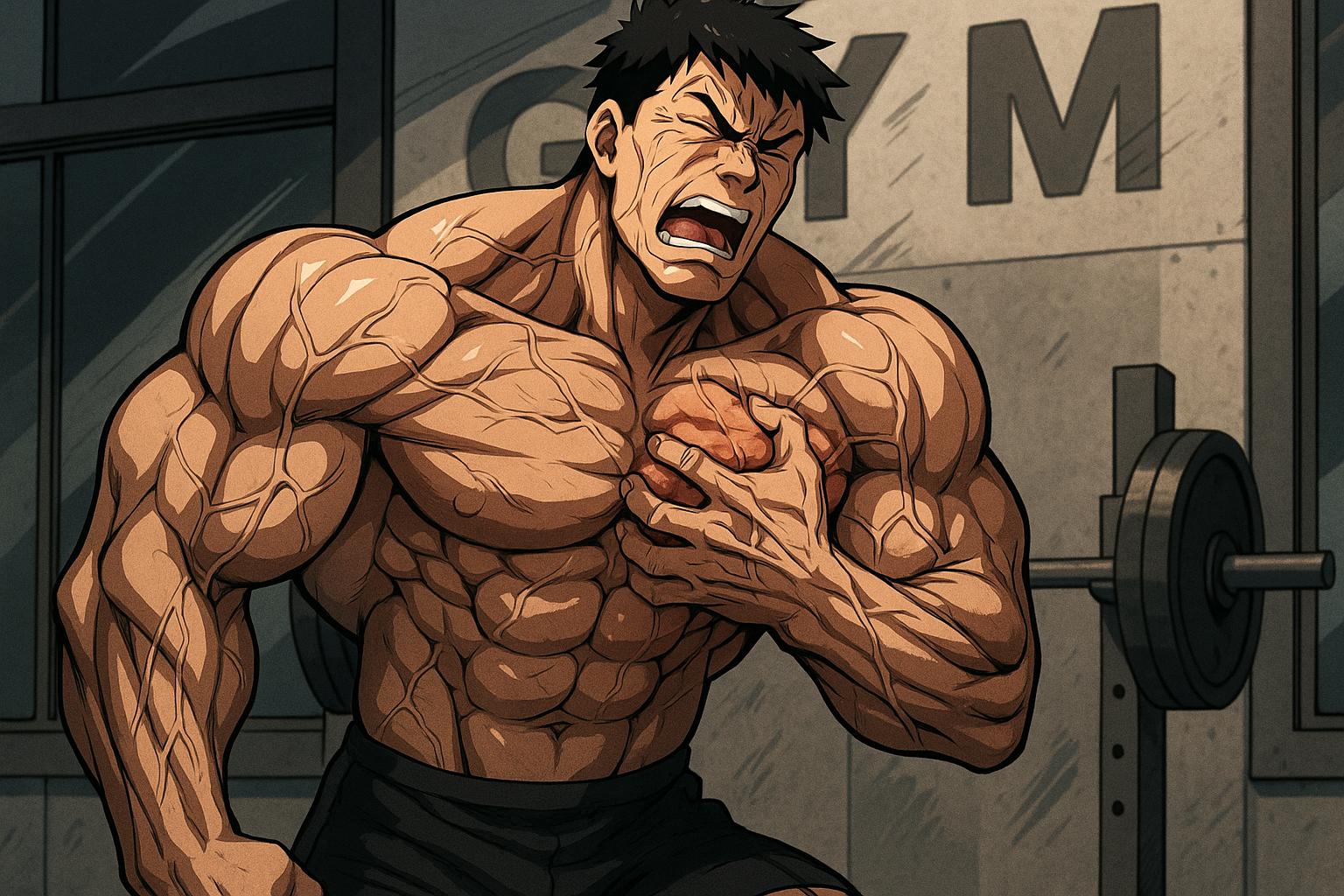
# Study finds Mr. Olympia champions face fivefold risk of sudden cardiac death



A recent comprehensive study involving over 20,000 bodybuilders has raised alarming questions regarding the potential health risks associated with extreme muscle development. This research reveals that individuals who dedicate their lives to bodybuilding face a significantly elevated risk of sudden cardiac death. Notably, those who actively compete—such as 'Mr. Olympia' champions like Arnold Schwarzenegger—are reported to be five times more at risk compared to their amateur counterparts.

The study, which analysed a span of records from 2005 to 2020, documented 121 fatalities among these athletes, with an average age of 45 at the time of death. Strikingly, around 40% of these deaths were sudden and attributable to heart-related issues. The authors of the study acknowledge that these numbers might underrepresent the true situation, highlighting that many cases were recorded as 'unknown' causes of death.

Dr Marco Vecchiato, a sports medicine expert from the University of Padova and author of the research published in the *European Heart Journal*, pointed out various factors contributing to this heightened risk. He cited intense strength training as one issue, alongside aggressive weight management tactics, including severe dietary restrictions and dehydration practices, that could strain the cardiovascular system. Furthermore, he noted the “widespread use of different performance-enhancing substances” as a critical factor.

Previous studies corroborate Dr. Vecchiato's concerns, suggesting that a significant percentage of bodybuilders—up to three in four—have used anabolic-androgenic steroids (AAS). These substances are implicated in exerting severe pressure on cardiovascular health, leading to serious complications. The case of Zak Wilkinson, a 32-year-old father who faced grave health crises after turning to steroids for muscle enhancement, serves as a disturbing example of these complications. Wilkinson experienced severe health issues, ultimately requiring a medically induced coma and ongoing health complications as a result.

Moreover, the new research not only highlighted cardiac risks but also revealed alarming statistics regarding 'sudden traumatic deaths' among bodybuilders. Incidents such as car accidents, suicides, and overdoses contributed to this category of fatalities, prompting Dr. Vecchiato to call for heightened awareness and better mental health support within the bodybuilding community. He emphasised that the culture surrounding bodybuilding can exacerbate psychological challenges, particularly when compounded by substance misuse, potentially leading to impulsive and self-destructive behaviours.

The findings of this study challenge the common misconception that a sculpted physique guarantees health. Dr. Vecchiato articulated this notion, stating that outward appearance does not accurately reflect underlying health risks, a sentiment supported by the analysis of autopsy reports that documented structural heart changes in bodybuilders tied to prolonged AAS use.

While the research underscores the dangers linked to extreme bodybuilding practices, Dr. Vecchiato cautioned against interpreting these findings as an indictment of bodybuilding as a whole. He stressed the many benefits of regular physical activity and strength training when conducted under safer conditions. The study serves as a critical reminder of the importance of health monitoring, cautious training practices, and a cultural shift that prioritises health over aesthetics. Adopting stricter anti-doping measures and promoting awareness about the dangers of performance-enhancing drugs are vital steps toward safeguarding athletes' health.

Looking ahead, researchers are planning to extend this investigation to examine potential risks among female bodybuilders, aiming to build a more comprehensive understanding of these issues.

### Reference Map

1. Paragraph 1: [[1]](https://www.dailymail.co.uk/health/article-14731677/bodybuilders-high-risk-sudden-cardiac-death.html?ns_mchannel=rss&ns_campaign=1490&ito=1490)
2. Paragraph 2: [[1]](https://www.dailymail.co.uk/health/article-14731677/bodybuilders-high-risk-sudden-cardiac-death.html?ns_mchannel=rss&ns_campaign=1490&ito=1490)
3. Paragraph 3: [[1]](https://www.dailymail.co.uk/health/article-14731677/bodybuilders-high-risk-sudden-cardiac-death.html?ns_mchannel=rss&ns_campaign=1490&ito=1490), [[3]](https://pubmed.ncbi.nlm.nih.gov/36547651/)
4. Paragraph 4: [[1]](https://www.dailymail.co.uk/health/article-14731677/bodybuilders-high-risk-sudden-cardiac-death.html?ns_mchannel=rss&ns_campaign=1490&ito=1490), [[2]](https://pubmed.ncbi.nlm.nih.gov/16292586/)
5. Paragraph 5: [[1]](https://www.dailymail.co.uk/health/article-14731677/bodybuilders-high-risk-sudden-cardiac-death.html?ns_mchannel=rss&ns_campaign=1490&ito=1490), [[5]](https://ncbi.nlm.nih.gov/pmc/articles/PMC4400712/)
6. Paragraph 6: [[1]](https://www.dailymail.co.uk/health/article-14731677/bodybuilders-high-risk-sudden-cardiac-death.html?ns_mchannel=rss&ns_campaign=1490&ito=1490), [[6]](https://pmc.ncbi.nlm.nih.gov/articles/PMC9885939/)
7. Paragraph 7: [[1]](https://www.dailymail.co.uk/health/article-14731677/bodybuilders-high-risk-sudden-cardiac-death.html?ns_mchannel=rss&ns_campaign=1490&ito=1490), [[4]](https://pubmed.ncbi.nlm.nih.gov/33158202/)
8. Paragraph 8: [[1]](https://www.dailymail.co.uk/health/article-14731677/bodybuilders-high-risk-sudden-cardiac-death.html?ns_mchannel=rss&ns_campaign=1490&ito=1490), [[7]](https://www.mayoclinicproceedings.org/article/S0025-6196%2819%2930834-1/fulltext)

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## Bibliography

1. <https://www.dailymail.co.uk/health/article-14731677/bodybuilders-high-risk-sudden-cardiac-death.html?ns_mchannel=rss&ns_campaign=1490&ito=1490> - Please view link - unable to able to access data
2. <https://pubmed.ncbi.nlm.nih.gov/16292586/> - This study reports two cases of sudden cardiac death in previously healthy bodybuilders who were chronic users of anabolic-androgenic steroids (AAS). Autopsies and toxicological screenings revealed myocardial injury and other cardiac abnormalities, supporting the consensus that vigorous weight training combined with AAS use may predispose individuals to sudden cardiac death.
3. <https://pubmed.ncbi.nlm.nih.gov/36547651/> - An analysis of autopsy reports of male bodybuilders under 50 who died from cardiovascular-related events found that these individuals had significantly heavier hearts and thicker left ventricular myocardium compared to normative data. The study suggests that prolonged AAS abuse may contribute to these cardiac abnormalities, highlighting potential cardiovascular risks associated with AAS use in bodybuilders.
4. <https://pubmed.ncbi.nlm.nih.gov/33158202/> - This literature review examines 33 reported cases of sudden cardiac death in AAS users, predominantly male bodybuilders. The study identifies four principal mechanisms responsible for sudden cardiac death in AAS abusers: the atherogenic model, the thrombosis model, the model of vasospasm induced by the release of nitric oxide, and the direct myocardial injury model. It emphasizes the need for further investigation into the cardiac pathophysiological mechanisms underlying these deaths.
5. <https://ncbi.nlm.nih.gov/pmc/articles/PMC4400712/> - This case-control study evaluated the association between cardiovascular diseases and anabolic steroid consumption in 267 male athletes aged 20-45 years. The study found that AAS use is associated with dangerous side effects, including cardiovascular diseases and sudden death in athletes. It highlights the prevalence and underlying mechanisms of AAS-induced cardiovascular toxicity, emphasizing the need for awareness and preventive measures.
6. <https://pmc.ncbi.nlm.nih.gov/articles/PMC9885939/> - This article discusses the recent deaths or near deaths of male and female bodybuilders, many of which were related to cardiovascular events. It highlights the need for awareness of potential contributing cardiovascular risks associated with AAS abuse and emphasizes the importance of preventive measures and monitoring in the bodybuilding community.
7. <https://www.mayoclinicproceedings.org/article/S0025-6196%2819%2930834-1/fulltext> - This study assesses the association between muscular strength and the risk of sudden cardiac death (SCD) in men. It found that higher levels of muscular strength were associated with a lower risk of SCD, suggesting that maintaining muscular strength may be protective against sudden cardiac death.