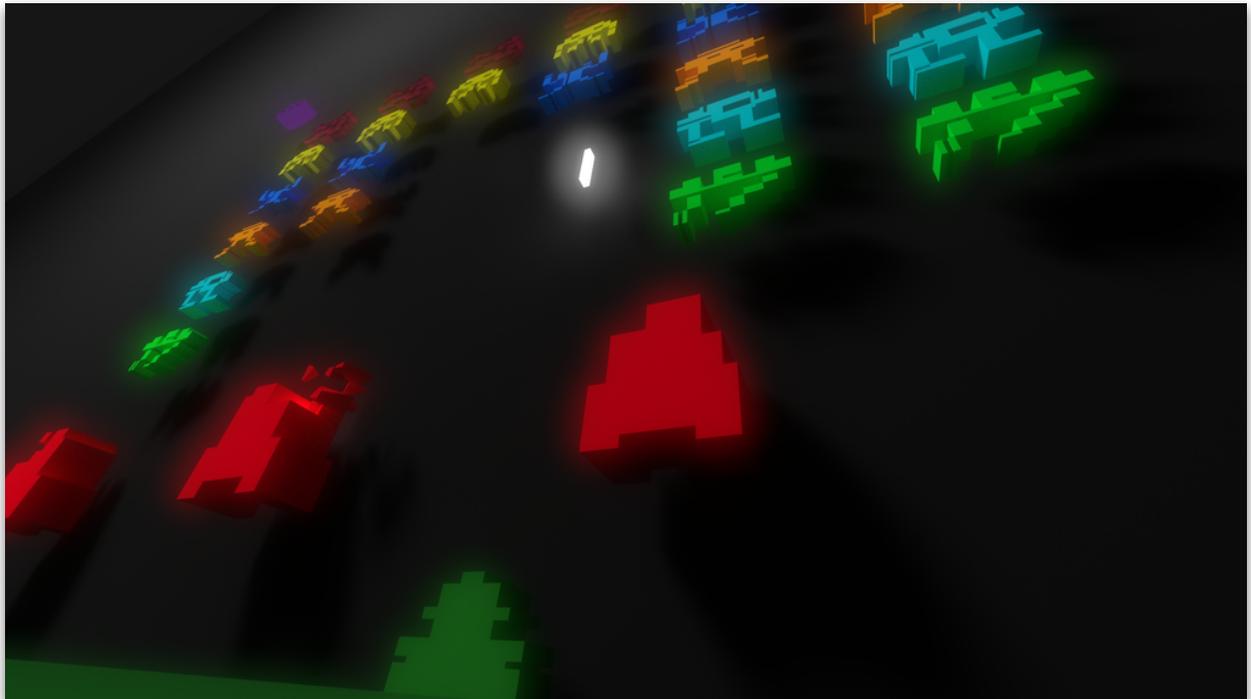


# Crunch Hurts

HOW UNMITIGATED OVERWORK HARMS EMPLOYEE HEALTH,  
PRODUCTIVITY, AND YOUR STUDIO'S BOTTOM LINE

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Take This, Inc. is a 501 (c) (3) non-profit charity that seeks to inform our community about mental health issues, to provide education about mental disorders and mental illness prevention, and to reduce the stigma of mental illness.

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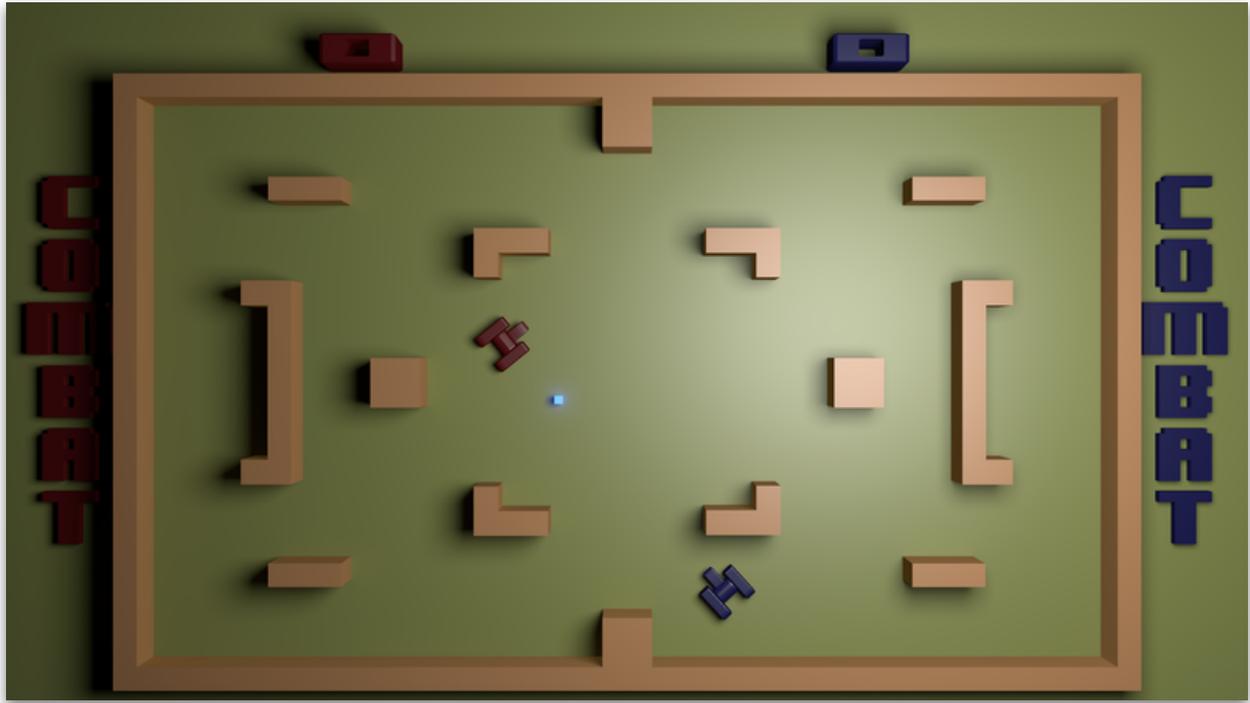
## Introduction

Video games are complicated to make, involving coordination amongst a variety of technological and creative disciplines, and teams that can grow as large as thousands of individuals spread across multiple continents. With such complexities inherent in the medium, it is little surprise that the majority of those who make games often experience periods of working long hours beyond the traditional 40 hour weeks, or “crunch.”

Common wisdom suggests that crunch is a necessary practice, and inevitable. Some developers even believe a successful product requires crunch, and that creativity and esprit de corps rely on it. Some simply fall into crunch for lack of any better option. Development teams may fall behind, or deadlines and milestones may be set with unrealistic expectations. Either way, when 40-hour work weeks seem like they won't be sufficient, 60 or 80-hour work weeks appear to be a perfect solution.

What often gets lost in this equation is the impact of overwork on employee health and, as a consequence, productivity. Put simply: Happy employees are provably more productive. And research shows that employees who are dealing with the stress of tight deadlines, lack of sleep, and long hours are generally less productive, more likely to fall ill or suffer from mental health issues (and therefore call in sick), and less likely to remain in their current jobs.

Crunch can also be expensive. Games produced under crunch conditions also suffer, with more bugs and lower Metacritic scores to show for all those extra hours. Studios incur the costs of sick, fatigued employees and their lost productivity. The industry as a whole loses developers to early burnout, and they take their talents, experience, and expertise with them.



## The Costs of Crunch

Crunch became a major talking point for the games industry in 2004, thanks to what became known as the EA spouse article. The anonymous article (since revealed to have been written by veteran game developer Erin Hoffman) alleged that one EA game studio required its employees to work a mandatory average of 85-hours per week without any additional compensation, far exceeding the legal maximum for unpaid overtime. That article set off an industry-wide debate over work hours and indirectly led to a \$14.9 million lawsuit settlement for EA's programmers.

More than a decade later, developers are still feeling the effects of crunch. The 2015 Developer Satisfaction Survey by the International Game Developers Association (IGDA) found that 62 percent of game developers reported that their jobs involved crunch. Half of those worked more than 60 hours per week, and 17 percent worked more than 70 hours per week.

Specific research on crunch in game development is still limited, but researchers have thoroughly studied the effects of working such long hours in and out of stressful environments.

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While it still can't be said with any certainty what role (positive or negative) crunch plays in the development of successful creative properties (including video games), the effects of overwork on employee health and happiness are the same in any industry. And while crunch may be an inevitable part of the game making process, understanding the mental and physical impact of the practice can lead to better work practices overall, and ultimately happier (and more productive) employees.

## **Productivity and Workplace Stress**

In a report for the IGDA entitled *Why Crunch Mode Doesn't Work*, game developer Evan Robinson examined the idea that longer work hours led to more productive development teams. He found evidence that productivity declines sharply after as little as four days of extended work hours. Even slight increases over a 40-hour work week are detrimental to hourly productivity after two months.

In 2008, game developer Clinton Keith shared the results of a company-mandated period of crunch. After one six-day week consisting of ten-hour days, productivity increased noticeably, but those gains were quickly lost. By week four, productivity matched a week of normal work hours. By week five, productivity was lower than it was during an average 40-hour week.

Research shows that the sorts of health, fatigue, and family issues that can be caused by crunch also have a costly effect on employee productivity.

- In a national Australian survey, employee cognition increased for hours worked up to 25 per week. Beyond that, cognitive abilities decreased. By 60-hours of work per week, cognition was lower than people who weren't working at all (Kajitani, McKenzie, & Sakata, 2016).
- In a large study of 4 US-based companies, productivity losses related to fatigue were estimated to cost the employers \$1,967/employee each year (Rosekind, Gregory, Mallis, Brandt, Seal, & Lerner, 2010).
- Each year, depression costs U.S. employers \$44 billion in just lost productivity alone (Stewart, Ricci, Chee, Hahn, & Morganstein, 2003).

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- Productivity losses related to personal and family health problems cost U.S. employers \$1,685 per employee a year, or \$225.8 billion annually (Stewart, Ricci, Chee, & Morganstein, 2003).
  - Lost productivity due to presenteeism (being at work while ill) is almost 7.5 times greater than that lost to absenteeism (Employers Health Coalition, 2000, p. 3).

Along with long work hours, stressful working conditions have a major impact on employee satisfaction and productivity.

- 51% of employees said they were less productive at work as a result of stress (American Psychological Association, 2009).
- In a study involving over 700 participants, researchers in the UK established that workers provided with benefits aimed directly at increasing happiness performed 12% better than those who were not (Sgroi, 2015).
- 52% of employees report that they have considered or made a decision about their career such as looking for a new job, declining a promotion or leaving a job based on workplace stress (American Psychological Association, 2007).
- 39% of employees experiencing high overwork levels say they feel very angry toward their employers versus only 1% who experience low overwork levels (Galinsky et al., 2005, p. 2).

Workplace stress also has a significant impact on financial outcomes.

- Job stress is estimated to cost U.S. industry more than \$300 billion a year in absenteeism, turnover, diminished productivity and medical, legal and insurance costs (Rosch, 2001).
- In a study of a large, multi-employer, multi-site employee population, health care expenditures for employees with high levels of stress were 46% higher than those for employees who did not have high levels of stress (Goetzel et al., 1998).

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## Mental and Physical Health

When game developers crunch, they often have to make compromises to their own well-being. Long work hours might mean giving up sleep, eating poorly, overindulging in caffeinated drinks, and otherwise abandoning healthy habits. Crunch also takes time developers could spend caring for their mental health, leaving them more vulnerable to issues they might otherwise have under control.

These sacrifices can take a toll on developers's mental and physical health, ultimately making them less happy and therefore less productive. Research shows unhappy employees are 12% less effective than those who have a comfortable work/life balance. In terms of "performance" 12% can mean a difference between completing a task on time (or accurately) and not. In other words, unmitigated crunch can become cyclical, turning a "death march" into a "death spiral".

Speaking with *Kotaku*, artist Clarke Nordhauser discussed the negative impact that joining a studio during crunch had on his mental health—an impact that helped convince him to leave the industry.

"By the third week of working there, I had noticed that I have never seen certain team members leave the office ever... You enter a certain point of depression where a process is comforting, and once I'd felt like another cog I just accepted this as my fate."

Research shows that crunch conditions are major risk factors for health problems that include insomnia, depression, heart disease, stroke, and on-the-job injuries.

- Employees who work more than 55 hours a week, compared to those working 35-40 hours a week, are: 2 times more likely to experience shortened sleep hours, 3.7 times more likely to find it difficult to fall asleep, and 2 times more likely to wake up without feeling refreshed. Repeated exposure to long work hours greatly increases these odds (Virtanen et al., 2009).
- People who work 11+ hour days have an almost 2.5 times higher risk of experiencing a major depressive episode, compared to those working 7-8 hour days (Virtanen, Stansfeld, Fuhrer, Ferrie, & Kivimäki, 2012).

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- Compared to people who work normal working hours (35-40 hours), people working 55 hours a week or more are at a higher risk for heart disease and stroke incidence (Kivimäki, Mika et al., 2015).
  - People working in jobs with overtime schedules experienced a 61% higher injury hazard rate compared to jobs without overtime (Dembe, Erickson, Delbos, & Banks, 2005).
  - People identified as workaholics were found to have higher rates of ADHD, OCD, anxiety and depression compared with those who weren't ranked as being addicted to work (Andreassen, Griffiths, Sinha, Hetland, Pallesen, 2016).
  - Overtime workers were found to have significantly higher anxiety and depression levels and higher prevalence of anxiety and depressive disorders compared with those working normal hours (Kleppa, Sanne, & Tell, 2008).

## **Work/Life Balance**

Crunch doesn't just impact developers—it also impacts their family members, and eventually employers. Developers with spouses or children see them less often. Developers who are responsible for dependents may not be able to arrange alternate care. Family members may resent the time crunching developers spend away from home. This can contribute to the employee turnover and additional training costs mentioned above.

During the course of its 2015 game developer salary survey, *Develop* spoke with industry members about the impact of crunch on their lives. Temmeke Games game producer Sam Watts related some of his experiences.

"I have seen others with less understanding partners or those with children suffer break-ups of relationships, marriages and ill-health through stress and working crazy additional hours," Watts told the magazine.

Another developer, speaking under conditions of anonymity, held similar views.

"Early on in my career I lost a relationship because I was never out of the office. Later it affected my health and the health of people close to me," he said.

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Research shows that family responsibilities often clash with work hours, which can lead to employees reevaluating their priorities.

- More than half of adults report that family responsibilities are a significant source of stress and 55% of employees say that job demands have interfered with responsibilities at home in the past three months. (American Psychological Association, 2009).
- A meta-analysis found a consistent negative relationship between work-family conflict and both job and life satisfaction (Kossek & Ozeki, 1998).
- 31% of working fathers say they would leave their jobs if their spouse/partner could financially support the family and another 30% would take a cut in pay to spend more time with their children (CareerBuilder Inc., 2009a).
- The existence of programs that facilitate work-life balance is related to organizational commitment and job satisfaction (Scandura & Lankau, 1997).

## **Game Quality**

Even when crunch succeeds at getting a game out the door faster, the quality of the game can suffer from the stress and overwork experienced by its developers.

- Software defects were significantly higher in projects that required overtime than those that did not (Cusick and Akula, 2008).
- Game developers that reported high rates of crunch on projects also reported decreased return on investment and lower Metacritic scores for the resulting products (The Game Outcomes Project, 2015).

## **Burnout and Turnover**

When developers leave the video game industry, their expertise and talents leave with them. Crunch and stress contribute to burnout, and that burnout ends some game development

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careers. When the IGDA asked respondents in its 2014 Developer Satisfaction Survey why they wanted to leave the game industry, 15 percent of respondents cited burnout, while a further 39 percent said that they could find a better quality of living elsewhere.

In a 2013 interview with *Gameranx*, Stardock's Derek Paxton pointed out the negative impact this can have on the industry as a whole.

“Companies crunch to push through on a specific game, but the long-term effect is that talented developers, artists, producers and designers burn out and leave the industry. The studio may have gotten *Kung Fu Chicken* done on time, but what about the next game? What about all the games that would have benefited from the talent and experience of the professionals that end up leaving the industry rather than live at their desk?

“This becomes even more of a concern with developers that aren't in their early 20s. People with families and children are less willing to work 80 or more hours a week. Those extremely valuable voices end up leaving the industry, and we lose their experience and more mature worldviews.”

Research shows that burnout-related turnover doesn't just cost experience—it also has a financial cost.

- Although varied, the average cost to replace an employee is 20% of the employee's salary (Boushey and Glynn, 2012). Greater turnover rates mean greater costs to the company, not to mention the loss of productivity due to time spent training new employees. Employee retention means lowered cost and greater expertise.
- Repeated job strain and repeated situations of low social support at work are both linked to increases in major depressive disorder. (Stansfeld, Shipley, Head, & Fuhrer, 2012).
- Increased stress is linked to higher turnover intentions, mediated by job satisfaction, organizational commitment, and perceived organizational support (Villanueva & Djurokiv, 2009).



## Solutions

Studios often ensure their developers are fed during crunch, but food alone won't ensure that employees remain healthy and productive. Sleep, exercise, and time off are all necessary for well-being.

While the factors contributing to crunch may never be fully eliminated, and the need or desirability of crunch remains an open-question, there are nevertheless ways studios can mitigate the physical and emotional effects of crunch without sacrificing — and, in fact, increasing — the performance gains of working developers for longer hours.

If crunch is to be considered an accepted practice, then so, too must rest. Limiting crunch to the two-month mark at which productivity begins a steep decline can have a dramatic impact on overall employee health and productivity. Crunching for short periods, followed by short periods of relaxed hours or work from home can allow teams to benefit from the positive effects of crunch without sacrificing overall health.

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Even better, crunching in a work environment that already approaches emotional wellbeing as part of a proactive managerial support structure makes it more likely employees will follow physical and emotional health hygiene best practices, possibly delaying or avoiding the deleterious effects of crunch entirely.

Health promotion programs, mental health first-aid training, and structural changes can all contribute to a healthier, more productive workforce.

Research shows that this isn't just good for people—it's also good for financial outcomes.

- In a study of 50 global companies, those with highly engaged employees increased operating income 19% and earnings per share almost 28% over one year, while companies with low employee engagement levels showed declines of 32% in operating income and 11% in earnings per share (Towers Perrin, 2008, p. 5).
- A meta-evaluation of 56 peer reviewed journal articles on worksite health promotion programs shows an average 26.8% reduction in sick leave absenteeism, an average 26.1% reduction in health costs, an average 32% reduction in workers' compensation and disability management claims costs and an average \$5.81 savings for every dollar invested (Chapman, 2005).
- In a 2009/2010 report, companies with the most effective health and productivity programs achieved 11% more revenue per employee, delivered 28% higher shareholder returns and had lower medical trends and fewer absences per employee (TowersWatson, 2010, p. 2).

As such, it behooves every company to look out for the mental and physical well-being of its employees:

- Change starts at the top. If you are a manager, be an example of healthy work and life habits. Your employees see what you do. When you prioritize work/life balance, it's a subtle endorsement that they should, too. The statement, "I've put in my hours today, and this can wait," is a powerful one for employees to hear.
- Mind your words. How you talk about work and health (mental and physical) is heard by your employees. If you condemn those who go home at reasonable hours as

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“undedicated” or “weak”, that will send the message that you are uncaring and lack understanding regarding your employees’ lives outside work.

- It may sound counterintuitive when you want to complete a project quickly, but rested, healthy employees do more efficient work. Encourage your employees to routinely work for 35-40 hours a week, and avoid situations where longer hours will be required for more than two weeks straight. Emergencies which require additional attention will happen, but they shouldn’t be a regular or frequent occurrence.
- When approaching milestones, consider setting universal practices that minimize distractions. Set hours, lunches and breaks can keep employees focused during the work day. Cutting down on meetings can also keep employees on task.
- Monitor your employees for those who are routinely putting in more than 8-10 hours a day. If you see it, talk to them and discuss with them why that is, and collaborate on a solution.
- Endorse efficiency over number of hours worked. This can be done by promoting people who are doing the best work with the least hours. Promoting people who work the most overtime can help create a system of managers who have no work/life balance and will demand it of their employees, which exacerbates the problem.
- Encourage employees to routinely disconnect from work when not physically there. Emergencies sometimes happen which require attention after hours, but if that’s a routine occurrence, then that is an organizational problem that should be addressed. This means that employees should be actively encouraged to respond to emails and phone calls during routine work hours only.
- Incentivise your employees to engage in healthy sleep and exercise habits. Examples might be a partnership with a local gym to offer discounted memberships, allocating a certain dollar amount each year for each employee to use on fitness-related expenses, a prize for the team that does the least amount of work after 7pm, rewards for obtaining routine health screenings, or team/individual wearable fitness tracker challenges.
- Create family-friendly social events after normal work hours to encourage employees to spend time with their families and further encourage time disconnected from work.

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- Encourage work/life separation by creating a fun system by which penalties are imposed for talking about work or projects during company social events (i.e. The Project Jar: employees and supervisors must put in \$1 every time they talk about a project while socializing). Use that money to fund further social events.
  - If your company routinely offers food to its employees, consider foods lower in sugar and higher in nutrients. For example, prepacked vegetable platters instead of candy bars, sparkling water instead of soda, or coffee and tea instead of energy drinks.
  - Encourage employees to stay home when sick. This prevents not only the loss of productivity from them while they are at work, but prevents illness from being spread to other employees and further productivity losses.

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## Additional Reading

[EA: The Human Story](#): Also known as the EA spouse article, this open letter brought crunch to light as a major issue in the video game industry.

[Depression-Proof Studio Culture: A How-To for Mental Wellness](#): Take This co-founder Russ Pitts shares simple, effective advice on how to destigmatize mental health issues in your studios, help yourself and others create a positive work experience; effectively reach to those who may be suffering silently; and create a culture with a positive resistance to mental health issues.

[Crunch life: Why developers shouldn't kill themselves to make a game](#), *Develop*

[Why Crunch Mode Doesn't Work: Six Lessons](#), IGDA

[Scrum & Overtime?](#) *Agile Game Development*

[Death March Crunches: 10 Causes and Solutions](#) *Agile Game Development*

[The Horrible World of Video Game Crunch](#), *Kotaku*

[The Game Industry's Crunching Problem: An Interview with Stardock's Derek Paxton](#), *Gameranx*

[Working Time Among Video Game Developers: Trends over 2004-14](#) *Gamasutra*

[You're crunching. So now what?](#) *Gamasutra*

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## About Take This

[Take This](#) is a 501(c)(3) non-profit charity founded in 2013 by veteran journalists Russ Pitts and Susan Arendt and clinical psychologist Dr. Mark Kline, Psy.D. in response to the tragic suicide of a colleague. Take This, Inc. seeks to inform our community about mental health issues, to provide education about mental disorders and mental illness prevention, and to reduce the stigma of mental illness. For information on when to seek dedicated clinical help and how to find it, please visit “[When to Seek Help](#)”. If you or someone you know is in crisis and in need of immediate intervention, please visit the [National Suicide Prevention Lifeline](#) or call 1-800-273-8255.

Take This helps those who suffer by letting them know that they are not alone and providing information on treatment options and how to find help. Take This provides friends, family and coworkers of those suffering from emotional distress with options for intervention and education about mental wellness. Take This educates greater institutions about effective methods of helping employees who suffer from emotional issues in order to promote healthier and more productive work environments.



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