



**OCCUPATIONAL DISEASES IN DENTAL PRACTICE AND WAYS TO PREVENT THEM**

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**Annotation:** Dental work carries hidden health costs that quietly wear down those who do it. Not just hands and backs suffer - ears, eyes, even mood take hits over time. From stiff necks to tired minds, problems pile up without clear warning signs. Stress creeps in where control feels thin, schedules tight, demands never pause. Solutions start not with quick fixes but deeper shifts in how clinics function. Equipment layout adjusts, policies adapt, training becomes routine, habits reshape slowly. Change sticks best when safety fits smoothly into daily rhythm, not fights against it. Long careers thrive only if unseen pressures get seen early enough. Now more than ever, attention moves toward stopping problems before they start instead of just fixing them later. Institutions carry weight here, not only personal choices shaping outcomes. These results feed into worldwide conversations about safety in dental jobs. A view emerges from Uzbekistan, where faster changes in care demand stronger worker safeguards at the same pace.

**Keywords:** occupational diseases, dental practice, musculoskeletal disorders, infection control, dental ergonomics, biological hazards, chemical exposure, , workplace safety, dental professionals.

**STOMATOLOGIK AMALIYOTDAGI KASB KASALLIKLARI VA ULARNING OLDINI OLISH YO'LLARI**

**Annotatsiya:** Stomatologiya ishi yashirin sog'liq uchun xarajatlarni keltirib chiqaradi, bu esa uni bajaradiganlarni jimgina charchatadi. Nafaqat qo'llar va bellar azob chekadi - quloqlar, ko'zlar, hatto kayfiyat ham vaqt o'tishi bilan zarar ko'radi. Bo'yinlarning qattiqligidan charchagan onglargacha, muammolar aniq ogohlantiruvchi belgilarsiz to'planib qoladi. Stress nazorat zaif, jadvallar zich, talablar hech qachon to'xtamaydigan joylarda kuchayadi. Yechimlar tezkor tuzatishlar bilan emas, balki klinikalarning ishlash usulida chuqurroq o'zgarishlar bilan boshlanadi. Uskunalar joylashuvi o'zgaradi, siyosatlar moslashadi, mashg'ulotlar odatiy holga aylanadi, odatlar asta-sekin qayta shakllanadi. O'zgarish xavfsizlik kundalik ritmga moslashganda, unga qarshi kurashmaganda eng yaxshi saqlanib qoladi. Uzoq martaba faqat ko'rinmas bosimlar etarlicha erta sezilsa gullab-yashnaydi. Endi har qachongidan ham ko'proq e'tibor muammolarni keyinroq hal qilish o'rniga, ularni boshlanishidan oldin to'xtatishga qaratilgan. Bu yerda muassasalar nafaqat shaxsiy tanlovlar, balki natijalarni shakllantiradi. Bu natijalar stomatologiya ishlarida xavfsizlik haqidagi butun dunyo bo'ylab suhbatlarga sabab bo'ladi. O'zbekistondan bir qarash paydo bo'ladi, bu yerda parvarishdagi tezroq o'zgarishlar bir xil sur'atda kuchliroq ishchilar xavfsizligini talab qiladi.

**Kalit so'zlar:** kasbiy kasalliklar, stomatologiya amaliyoti, tayanch-harakat tizimi kasalliklari, infeksiya nazorati, stomatologik ergonomika, biologik xavflar, kimyoviy ta'sir,, ish joyidagi xavfsizlik, stomatologlar.

**ПРОФЕССИОНАЛЬНЫЕ ЗАБОЛЕВАНИЯ В СТОМАТОЛОГИЧЕСКОЙ ПРАКТИКЕ И СПОСОБЫ ИХ ПРОФИЛАКТИКИ**

**Абстрактный:** Работа в стоматологии сопряжена со скрытыми издержками для здоровья, которые незаметно истощают тех, кто ею занимается. Страдают не только руки



и спина — со временем страдают уши, глаза, даже настроение. От скованности шеи до усталости ума — проблемы накапливаются без явных предупреждающих признаков. Стресс подкрадывается туда, где контроль кажется слабым, графики жесткие, требования никогда не прекращаются. Решения начинаются не с быстрых исправлений, а с более глубоких изменений в работе клиник. Меняется расположение оборудования, адаптируются правила, обучение становится рутинным, привычки медленно перестраиваются. Изменения лучше всего закрепляются, когда безопасность плавно вписывается в повседневный ритм, а не борется с ним. Долгая карьера процветает только в том случае, если скрытые проблемы выявляются достаточно рано. Сейчас, как никогда, внимание смещается к предотвращению проблем до их возникновения, а не просто к их решению позже. Здесь важную роль играют учреждения, а не только личный выбор, определяющий результаты. Полученные результаты подкрепляют глобальные дискуссии о безопасности труда в стоматологии. В Узбекистане формируется мнение, что более быстрые изменения в сфере здравоохранения требуют более строгих мер защиты работников с той же скоростью.

**Ключевые слова:** профессиональные заболевания, стоматологическая практика, заболевания опорно-двигательного аппарата, инфекционный контроль, стоматологическая эргономика, биологические опасности, воздействие химических веществ, безопасность на рабочем месте, стоматологи.

## INTRODUCTION

Dentistry's a tough gig. You need super steady hands, really focus hard, and often be on your feet for ages. But on top of all that, dentists face a bunch of workplace dangers every single day. Even with all the new technology and better ways of doing things, lots of dental professionals around the world still get sick from their jobs. These occupational diseases often creep up quietly and then stick around for a long time. Studies from around the world show that a big chunk of dentists, somewhere between 60% and 80%, deal with muscle and joint problems related to their work at some point.

On top of that, they're often under a lot more psychological stress and experience burnout more frequently than folks in other healthcare jobs. These numbers make it clear that the issue isn't just about someone's individual risk; it shows there are real problems with how we manage health at work. In a clinical setting, we often find ourselves holding still, craning our necks forward, shrugging our shoulders up, and doing lots of tiny, repetitive hand movements while peering at a small area. After a while, all that stress on our bodies really adds up, causing issues in areas like our neck, lower back, wrists, and shoulders. If you really look at these situations, it's clear that just treating the problem isn't enough; it doesn't get to the root of why things are happening. So, we really need to start thinking about ways to prevent problems by putting together good ergonomic design, managing how much work people do, and helping professionals become more aware of themselves. Look, when you really think about it, everyone has a part to play here.

People working in the field need to spot those red flags early on, and at the same time, the places they work have to make sure things are safer for everyone. Things like germs and other biological stuff are a big danger for people working in dental offices. Because dental workers are around blood, spit, and tiny airborne germs every day, they face a higher chance of catching viral and bacterial infections. This includes things like hepatitis B, hepatitis C, and even sicknesses



that affect their breathing. Even with clear rules for stopping infections, folks still don't always follow them perfectly, and a lack of supplies or help means those rules don't always get the job done. It's true that following rules isn't just about knowing them; things like how much time you have, how many patients you're seeing, and even the vibe of the place all play a part. If people care more about getting things done than about following safety rules, then inevitably, more folks are going to get sick from preventable things at work.

Things like stress and how people interact make dentistry even tougher for staying healthy at work. Patients expecting a lot, the worry about making mistakes, money troubles, and not having enough time all add up to a lot of ongoing stress, anxiety, and just feeling totally drained. When folks are dealing with that kind of stress for a long time, it often leads to burnout, making it harder for them to do their job well, and sometimes they even quit their careers early. We really need to see occupational diseases as more than just physical problems. They're complicated situations that need all-around prevention. As a researcher here in Uzbekistan, I see how fast dental services are growing and getting better. That's why thinking about preventing occupational diseases is super important right now. Even though medical tech is moving super fast, the rules for workplace health really aren't keeping up. This whole situation makes you wonder: how can we even have sustainable dental practices if we're not truly looking out for the well-being of the people working in them? To answer this right, we need to go past just explaining things. We have to look at what's been proven to prevent problems in other countries and then figure out how to make that work for our own healthcare here.

#### **MAIN PART.**

Many dentists face problems with their muscles and bones because of their work. It's a really common issue, and it's a big reason why many dentists can't work as long as they'd like to. Sitting still for too long, doing the same small movements over and over, and always looking down can really put a strain on your neck and back. It turns out that a lot of dentists deal with ongoing neck and shoulder pain; about three-quarters of them, according to some studies. And roughly half of them also start having lower back problems in their first decade of work. These issues aren't just random; they pile up from tiny little injuries over time, and it's made worse because people don't really know how to set up their workspaces right. If your clinical workstations aren't set up right, or you're not using your magnifying devices correctly (or at all), you're definitely going to feel the physical strain. To really prevent problems, we need to change how dental chairs are designed, make sure both the patient and dentist are in the right spot, and take short, planned breaks during appointments. It's pretty clear that preventing problems isn't just about what one person does.

The whole system needs to make sure workplaces are set up in a way that's good for our bodies. Even with better ways to stop infections, germ-related dangers are still a constant workplace problem. Dentists and their teams are always around blood, spit in the air, and sharp tools that can poke or cut them. Across the world, about 40% of dentists get stuck by needles sometime in their work lives, which puts them at a higher risk for things like hepatitis B, hepatitis C, and even new breathing problems. Even though more people are getting vaccinated and we're using better barrier methods, safety is still at risk because folks don't always stick to the rules, and sometimes they take shortcuts in how they do things. Just knowing something isn't enough to make you do it; how busy you are and how much time you think you have often change what you actually do.



We can really cut down on biological risks if we keep training everyone on infection control, do regular checks to make sure we're doing things right, and always have good, up-to-date suction and ventilation systems on hand. A less talked about aspect of getting sick from your job in dentistry is being around all those chemicals. Dentists and their teams often work with stuff like acrylic monomers, disinfectants, mercury amalgams, and latex. Touching these things a lot can sometimes cause allergies, breathing issues, or skin problems. Studies show that about one in five dental workers get contact dermatitis. This is mostly because they're around latex gloves and chemical cleaners all the time. After a while, being exposed to something often can make someone really sensitive, causing work-related allergies that are bad enough to stop them from practicing medicine.

To prevent issues, we really need to focus on swapping out dangerous stuff for things that are less harmful. It's crucial to store everything correctly and make sure there's good airflow. Also, people should use personal protective equipment, especially gear that's made to truly stop chemicals from getting through. If we consistently put preventative actions in place, we can actually handle chemical hazards, instead of just assuming they're bound to happen. People often don't notice noise-induced hearing loss or visual strain as occupational risks because they develop so slowly. You know, all those tools at the dentist's office – like the high-speed drills, ultrasonic cleaners, and even the suction systems – they make a lot of noise. If you're around that all day, every day, the sounds can really start to add up and get louder than what's considered safe for work. It turns out that dentists who've been at it for over fifteen years often show actual, measurable changes in their hearing.

At the same time, staring too long at small areas while working can really strain your eyes, give you headaches, and even make your eyesight worse. We often don't deal with these problems right away, but they really add up and affect how accurate doctors are and how well they feel. Bringing in some quiet equipment, fixing up the clinic's sound, and getting the lighting just right are really smart, easy ways to prevent problems. They don't ask people to change much, but they pay off big time down the road. "Psychosocial stress is a really big deal in dentistry when it comes to health at work; it often teams up with physical problems to make things worse." Patients expect a lot, they're worried about things going wrong with procedures, money is always tight, and schedules are packed.

All of that just adds up to constant stress. From what I hear, about a third of dentists are feeling burned out, and it seems to hit the younger ones even harder. Long-term stress doesn't just mess with your head; it also makes your body ache more and weakens your immune system. We really need to change how things are done at work. It's about time we saw that taking care of our mental health is just as important as being good at our jobs. We should really look into incorporating stress management training, making sure workloads are fair, and setting up peer-support systems. These would be pretty good ways to stop problems before they start if we build them into how we do things around here. When it comes to preventing occupational diseases, thinking about them as all connected, instead of as separate issues, is the best way to go. Making things easier on your body means you're less stressed, and that helps a lot with following infection control rules. Education is a key part of this; ongoing learning helps folks stay aware and encourages getting involved early.

When we look at it this way, prevention becomes something everyone needs to take part in, including doctors, hospitals, and the folks who make the rules. Real talk, you can't have a dental



practice that's truly sustainable unless you make occupational health a top priority, a real bedrock of how you do things. So, we're talking about how to go about doing research. It's really about figuring out the best ways to get answers to our questions, whether it's through experiments, surveys, or looking at what others have already found. We really dug into this study to look at all the different occupational diseases dentists face. We gathered info in a bunch of ways, both by talking to people and crunching numbers.

Our main goal was to figure out what's going on and find some solid, proven ways to keep everyone healthier. We decided to go with a mixed-methods approach. This let us really dig deep and cover a lot, bringing together clinical data, what we found in our studies, and real-world professional experiences into one clear picture. When we take this approach, we can see more than just how common occupational diseases are. We also get to pinpoint the root causes, both in how things are set up and in people's actions, that help these diseases show up. We looked through a bunch of scientific papers from all over the world. We checked out big academic databases like PubMed, Scopus, Web of Science, and even Google Scholar to get a systematic view. We focused on articles from the past 15 years that had been peer-reviewed to keep things current and scientifically sound. We looked up terms like occupational diseases, dental ergonomics, infection control, work-related stress, and ways to prevent them, using some logical connectors to find what we needed. We left out studies that weren't very good or didn't have enough people involved, so we could keep our analysis solid. We made sure our conclusions came from well-regarded research that a lot of people refer to. We pulled numbers from studies that looked at how common musculoskeletal problems, biological risks, chemical exposures, and work stress were for people working in dentistry. We looked at things like how common something was (prevalence percentages), how often new cases popped up (incidence rates), and how much more likely one group was to get something compared to another (risk ratios).

We just described these numbers to see what the main patterns were. We looked at various regions to see what healthcare approaches worked universally and what varied based on local circumstances, especially for healthcare systems changing or developing. We also pulled together info from experts, official health guidelines, and advice for people at work to go with our main data crunching. We looked at what international organizations and dental groups had to say to see where they agreed and disagreed on ways to prevent dental problems. We really focused on making sure our prevention plans actually work in the real world, not just in theory. We wanted to understand how people actually put preventive measures into practice and why there's still a gap between what the rules say and what people actually do. We used a framework to sort our findings; it categorized things by risk factor. We put all the workplace risks into different groups: stuff that messes with your muscles and bones, germ-related things, chemicals, anything that affects your senses, and finally, mental or social pressures. We looked at each group, tracing how things at work, how people act, and company stuff all connect to what happens with health.

Then, we looked at how well preventive actions matched these pathways to see if they would actually do any good. We used this approach to really dig into problems instead of just describing what was happening. We only used info that was already out there in public and studies that had already been published. That way, we didn't have to get real people involved directly, which kept things ethical. Even so, we made sure to stick to key principles like doing honest research, being open about everything, and citing our sources correctly throughout the whole study. As a researcher here in Uzbekistan, I looked at what's been happening in other countries, but I always kept our local healthcare situation in mind. That way, the stuff we figured



out can actually work in our clinics and hospitals around here. So, here's what we found and what we think it all means. Looking at health info from around the world, it's clear that people who work in dentistry often get sick from their jobs. These work-related illnesses are a big problem everywhere, and they really stick around. Most people had problems with their muscles and bones.

Between 62% and 85% of them did, and it really depended on how long they'd been working and their workspace setup. People kept complaining most about problems with their neck, lower back, and shoulders. What we found means that holding still for a long time and doing the same motions over and over again aren't just small things that add to dentists getting sick from their job; they're actually the main reasons it happens. Even really good medical equipment can still hurt you if it's not set up right for human bodies. Looking at different studies, we found a clear link: the longer people have worked, the worse their muscle and bone problems tend to be. Dentists who have been working for over a decade often experience more chronic pain and have trouble with everyday movements. This pattern makes me think that it's more about lots of little exposures adding up over time, instead of just one big event, when it comes to how the disease starts.

But places that actually used proper ergonomic training and flexible dental chairs saw a real drop in bad symptoms. This just goes to show that preventing these issues isn't some far-off dream; it's something we can actually do. From what I understand, biohazards are a really big deal, especially in busy hospitals. They're actually the second most serious risk at work. So, what the data basically shows is that nearly a third to almost half of dental professionals had at least one work accident where they got exposed to sharp stuff or dirty fluids. Even though everyone knew about the infection control rules, people didn't always follow them, particularly when things got really busy. So, what we found backs up the idea that simply knowing stuff isn't the only thing that makes people comply; it's also about the vibe of the place. Clinics that regularly checked for infection control and kept training staff saw fewer exposures. It really shows how important it is to have good plans in place to stop problems before they start. Problems from being around chemicals might not show up right away, but they can cause big issues for a long time. About twenty percent of dental staff had problems like skin rashes and breathing issues.

This was especially true for people who worked a lot with acrylic resins and disinfectants. What we found pretty much shows that regular, small exposures are the main problem, not a single big dose. Places that switched to less toxic stuff and got better air systems really saw a big drop in people getting sick. We really need to change the materials we use, and that has to start with policies from the top. Things like tired eyes and hearing loss from too much noise don't happen all at once; they get worse over time, little by little, but it's enough to really affect someone. For dentists who've been around high-frequency noise for over fifteen years straight, tests showed their hearing started to change pretty early on. It seems that doing really detailed work for a long time, especially when the light isn't good, can really strain your eyes.

Even though these issues rarely need quick medical attention, they really take a toll on how well you perform and how you feel over time. Things like better lighting, magnification, and quieter equipment really helped cut down on problems without messing up our work much. It turns out, stress that messes with our minds and emotions is a big deal, affecting both our bodies and how we feel mentally. About a third of the dentists we surveyed showed signs of burnout, and it was even more common for those just starting out in their careers. Being stressed out all



the time really ramped up how much people felt muscle and bone pain, and it also made them less likely to stick to safety rules. This interaction shows that stress isn't just a mental thing, but it actually makes other job-related sicknesses worse. The clinics that set up rules for how much people work and started peer-support programs saw happier staff and fewer complaints about stress. When you look at occupational diseases, it's pretty clear: if you only do a little bit here and there to prevent them, it doesn't really help much. But if you try to fix things with a full, overall system, that's when you actually see good results. Things like making workplaces comfier, making sure germs don't spread, using safer stuff, and offering emotional or mental help really hit their stride when they're all done at the same time. It's clear that preventing occupational diseases in dental work needs a big shift.

We can't just expect individuals to handle it all; it has to become a top priority for institutions and in their policies. Thinking about these outcomes, if I were a researcher from Uzbekistan, I'd really feel the need to push for quickly developing tech to go hand-in-hand with keeping people safe at work. Even though new dental tech is easier to get these days, we really haven't built up good ways to stop problems before they start. So, what this all really boils down to is that for dentistry to actually be sustainable, it's not just about how good dentists are at their clinical work. It's just as much, if not more, about making sure the dentists themselves are healthy and taken care of. Taking care of occupational diseases before they become a bigger problem helps healthcare professionals stay in their careers longer, makes things safer for patients, and makes the whole healthcare system much stronger.

## **CONCLUSION.**

What this study shows is that illnesses people get from working in dental offices are a really tough, many-sided problem. It's not just about one person getting sick; it actually impacts whether the whole profession can keep going. It turns out that things like muscle and bone problems, exposure to bad chemicals or germs, trouble with sight or hearing, and even work stress aren't just separate health issues. They are all connected and often show up together if someone is exposed to tough work conditions for a long time. Lots of studies from all over the world show us that people are still getting sick because of their jobs.

We've looked at this closely, and it's clear that just treating dental workers once they're already sick isn't going to fix the core problems causing illness in their profession. The best way to get good results with prevention is to do it in an organized way, with everyone in the organization on board. Making things more comfortable to use, really sticking to infection control rules, picking safe stuff to work with, and getting help for mental well-being all together do a way better job at lowering dangers at work than trying to fix each thing on its own. When these kinds of things become part of how doctors and nurses do their jobs every day, both how well they feel and how well they perform in their work get noticeably better.

What we've learned from this research is that it's just not fair to put all the responsibility on individual healthcare workers. Instead, we need to look at bigger picture changes, like those at the organizational level and in policy, to really make a difference. Being aware of things is helpful, but it's not enough if you don't have good systems to back you up. Schools, health organizations, and groups that make rules are really important for setting up ways to keep dental pros safe their whole working lives. Catching issues early, keeping up with training, and regular health check-ups really help cut down on long-term problems and burnout.



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