

# Chiropractor Report

## 24Hr Synchronous Operator Chair

### Evaluated by:

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### 1. Aim of the Assessment

This report evaluates a high-spec, high-back task chair designed for intensive or 24-hour environments. The purpose is to link the chair's wide-ranging adjustments to postural control, pressure management, and the prevention or mitigation of common work-related musculoskeletal complaints (spine, neck/shoulder, hip).

Chair features reviewed:

- High backrest with adjustable back height and rake
- Triple-paddle synchronous mechanism
- Forward seat tilt and seat depth (seat slide)
- Adjustable bodyweight/tension control, with upright lock
- Gas-lift seat height adjustment
- Multi-directional, height-adjustable armrests
- 24-hour suitability (robustness / continuous-use intent)

### 2. Overall Opinion

This chair is a good option where users spend long periods seated and need to fine-tune the chair to their own build and task. Because it allows control over back angle, seat angle, and seat depth as well as arm positioning, it can be set up to reduce sustained flexed postures, improve thigh support, and unload the neck and shoulders. That makes it particularly relevant for users with recurring low back discomfort, postural neck pain, or those moving in and out of the chair across shifts.

### 3. Key Functional Elements and Their Ergonomic/Posture Relevance

#### 3.1 High Backrest with Adjustable Back Height / Back Rake

- The tall back gives support up through the thoracic area, not just the lumbar region, which is important for users who otherwise round their upper back over time.

- Back height adjustment means the internal shaping (or any built-in lumbar area) can be positioned where the user's own spinal curves are — important for people with **variable lumbar lordosis** or those of different torso lengths.
- Back rake (the backward tilt of the backrest) lets the user move away from an excessively upright, load-heavy posture into a more open hip-trunk angle.

**Ergonomic/Posture benefit:**

Supports a more natural spinal profile, reducing sustained flexion that can aggravate mechanical low back pain, facet irritation, or postural mid-back ache. A better-matched back height also helps users with longer torsos avoid unsupported zones that lead to fatigue.

### 3.2 Triple-Paddle Synchronous Mechanism

- A synchronous action means the seat and back move in a coordinated ratio, keeping the user supported as they shift position.
- Multiple paddles give independent control — the user isn't forced into one fixed combination. That's valuable in 24-hour environments where different individuals will sit in the same chair.
- Dynamic mechanisms promote movement, which is protective against stiffness.

**Ergonomic/Posture benefit:**

Encourages small changes in spinal and hip angles throughout the day, improving circulation and reducing the "static hold" that often triggers recurrent lumbar stiffness or discomfort on rising from the chair.

### 3.3 Forward Seat Tilt

- Being able to angle the seat slightly forward opens the pelvis and reduces posterior pelvic tilt.
- This is particularly helpful for users who tend to slump when keying or who have abdominal mass that pushes the pelvis backward.
- It can also make upright task-focused sitting (e.g. detailed computer work) more comfortable without resorting to perching.

**Ergonomic/Posture benefit:**

The user adopts a dynamic seating position: Helps preserve lumbar curve and decreases compressive and ligamentous strain associated with long periods of slumped sitting, making it useful for people with disc-sensitive backs or early degenerative lumbar changes who report that flexion worsens symptoms.

### 3.4 Seat Slide (Seat Depth Adjustment)

- Seat depth can be shortened for smaller users so the back can be used properly without the seat pressing into the backs of the knees.
- It can be lengthened for taller users to support more of the thigh, spreading bodyweight over a larger surface.
- Correct thigh support reduces edge pressure, which can otherwise limit circulation and prompt people to perch on the front of the seat — a posture that removes lumbar support.

#### Ergonomic/Posture benefit:

Promotes full back contact, which in turn stabilises the spine and reduces compensatory postures. Helpful in preventing posterior knee pressure, circulatory discomfort in the lower limbs, DVT, and the secondary low-back strain that comes from sitting forward of the backrest.

### 3.5 Tension Control with Upright Lock

- Tension control means the recline can be matched to the user's own bodyweight so the chair doesn't recline too easily or resist too much.
- A well-tuned tension allows smooth, controlled movement — important for people with sensitive or recovering backs where sudden motion can be painful.
- The ability to lock upright is useful for precision tasks or for users who prefer momentary fixed support.

#### Ergonomic/Posture benefit:

Supports **active sitting** (good for disc health and joint nutrition) while avoiding unexpected recline that could aggravate acute lumbar strain or facet joint pain. Upright lock helps maintain a safe, neutral posture during tasks that would otherwise pull the user forward.

### 3.6 Sturdy Gas-Lift Seat Height Adjustment

- Quick height change makes it easy to align the user's elbow height with the work surface.
- Correct seat height keeps hips level or slightly above the knees, which helps avoid excessive posterior pelvic tilt.
- In multi-user or 24/7 settings, the reliability of the gas-lift is important so users aren't forced into too-low seating, which increases spinal flexion.

#### Ergonomic/Posture benefit:

Helps maintain neutral pelvis and lumbar alignment and reduces the need to elevate the shoulders to reach the desk, preventing upper trapezius/neck overload.

### 3.7 Multi-Directional, Height-Adjustable Armrests

- Armrests that go up/down and can be adjusted laterally/inwards allow the user to bring the support to their arms rather than abducting the shoulders.
- Proper arm support offloads the cervical spine and shoulders during keyboarding or mouse work.
- Adjustability also means the arms can be set so they don't obstruct close approach to the desk — avoiding forward head posture.

#### Ergonomic/Posture benefit:

Reduces loading on the neck, shoulders, and upper back, which is beneficial for users with cervicogenic headaches, tension-type neck pain, rotator cuff irritation, or mouse-related shoulder discomfort.

### 3.8 24-Hour / Heavy-Use Recommendation

- Chairs used round-the-clock need to retain their support characteristics; otherwise, foam breakdown or loosened mechanisms force users into poor posture.
- Retained performance supports consistent spinal posture across shifts.

#### Ergonomic benefit:

Maintains the protective effect of the chair over time, helping prevent gradual onset work-related musculoskeletal disorders (WRMSDs) from deteriorating seating.

## 4. Musculoskeletal Issues This Chair May Help Manage or Avoid

- Non-specific / mechanical low back pain linked to prolonged sitting
- Lumbar discomfort aggravated by flexion or by sitting away from the backrest
- Postural neck and shoulder pain from unsupported upper limbs
- Mid-back fatigue from insufficient thoracic support
- Discomfort behind the knees or thigh pressure due to incorrect seat depth
- Stiffness and circulation issues from static postures (mitigated by synchronous/tensioned movement)

*Note:* Users with acute disc herniation, nerve root involvement (sciatica), inflammatory spinal disease, or strict post-op precautions should follow clinical advice first; this chair can be configured to help but doesn't replace treatment.

## 5. Setup Sequence (to maximise health benefit)

1. **Set seat height** so feet are flat and knees slightly lower than hips.
2. **Adjust seat depth** so there is 2–3 fingers' clearance behind the knee while the back is fully used.

3. **Set back height/rake** so the shaping supports the lower and mid-back without pushing the user forward.
4. **Tune tension** to bodyweight; enable movement but avoid sudden recline. Lock upright only for short, precise tasks.
5. **Position armrests** at just under elbow height and close enough to support the forearms with relaxed shoulders.
6. **Fine-tune seat tilt** (forward, if needed) for tasks that require an upright trunk without slumping.

## 6. Conclusion

This feature-rich high-back task chair is well suited to environments where people sit for long stretches and where more than one user shares the same seat. Its wide adjustability allows it to counter the main risk factors for office-related spinal and shoulder problems: slumped sitting, lack of lumbar/thoracic support, unsupported arms, poor thigh support, and absence of postural variation. When set up properly, it can play a meaningful role in reducing recurrence and aggravation of common posture-related spinal complaints.

