

Integrating Technology with yoga for Students and faculty in college

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Abstract:

Yoga means union, and it is a technology developed for enhancing the different aspects of life and management of this technology, will help everyone experience enhanced health and well-being. College life can be a demanding and stressful experience. This study explores the potential of yoga as a holistic approach to improving well-being among college students. Yoga encompasses physical postures (asanas), breathing exercises (pranayama), and meditation, all of which have been shown to reduce stress and anxiety, enhance focus and concentration, and promote better sleep. Additionally, yoga improves physical health by increasing flexibility, posture, and strength. Beyond the physical, yoga cultivates self-awareness and mindfulness, empowering students to manage emotions and navigate the challenges of college life. This abstract highlights the multifaceted benefits of yoga and its potential to support the overall well-being of college students. The aim of this study is to establish preliminary evidence for the psycho physiological effects of yoga on stress in young-adult college students. The present study suggests that yoga has positive effects on a physiological level that leads to decreased levels of stress in college student. Further research is needed to examine the extent to which different types of yogic practices address the needs of different college subpopulations (e.g., overweight, sedentary, and smokers).

Keywords: College students, review, yoga, stress, management.

Background: Yoga was first mentioned in Rig-Veda, Upanishads, and the Yoga Sutras in Patanjali to help people understand the importance of health and inculcate a practice of well-being. Yoga courses are a significant stress and anxiety reducer for college students, a population that ranks high in self-reported anxiety and depression, according to a recent paper co-authored by Gregory Kane, professor of business administration at Eastern Connecticut State University.

Introduction:

About 40%–50% of college students are physically inactive. Similarly, it was found that college students' physical activity has been seriously neglected as a research topic, there is a lack of multiple-level approaches (i.e., personal, psychosocial, and environmental levels) for examining physical activity behaviors in the college student population and measures of physical activity are subjective and inconsistent which makes comparisons of physical activity patterns among different samples very difficult or impossible. Finding its roots in Ancient India, Yoga literally translates to union'. It comprises a set of spiritual, physical, and mental practices that can help one to channelize their body and it's functioning in a better way.

1.Yoga for Concentration in Students:

We humans live different phases of life that play an essential role in our development. This whole journey and its fruitfulness depend on how well we kept ourselves and handled the situations. In this process, the foundation plays an essential role in getting the expected results. The stronger the foundation, the more it provides stability for the further development of a human being. Student life is the phase when we learn about ourselves and our surroundings. We make friends and adhere to them throughout our lives. This signifies that what we do in the early phases of our lives affects our future development. Thus, being healthy is one of the aspects that we should take care of at an early age. Being healthy defines mental, physical, and social well-being.

This is almost exam time, and students develop mental and physical issues due to exam pressure. The main reason behind this misbalance is the lack of concentration and memory in studies. Thus, students fail to remember concepts and learning's, which leads to anxiety and exam pressure. Do not worry, we are going to emphasize on certain yoga exercises that students can do regularly to get the required attentiveness, concentration, health, and positivity to perform better in the exams.

II.OBJECTIVES: Objective of this paper to create an application which performs the following functionalities:

- **Real-Time Detection:** Create models and algorithms that can precisely identify and track human postures in real time, enabling prompt analysis and feedback.
- **Precision & Accuracy:** Attain a high degree of precision and accuracy while determining the locations of important body joints and landmarks, guaranteeing accurate and comprehensive posture information.
- **Pose Recognition:** Provide the system the ability to recognize particular stances or movements made by people, offering a thorough comprehension of the body's arrangement.
- **Feedback mechanism:** Provides users with prompt and informative input regarding the alignment of their posture, hence facilitating the enhancement of their overall practice or activity. Incorporate personalization features by tailoring the pose estimate algorithm to individual anatomy and movement patterns for more efficient and customized guiding.
- **Accessibility:** Make physical activities and wellness practices more accessible by offering a tool that can assist users in adopting the right postures, regardless of their location or skill level.
- **Injury Prevention:** through Posture Recognition: Reduce the danger of strain or injury during → physical activities by recognizing and alerting users to inappropriate postures or movements, which helps prevent injuries.

III. EXPECTED OUTCOMES It is expected that the AI yoga pose detection system would give users precise and fast feedback, allowing them to make adjustments in real time to improve their posture and mobility. By warning users against bad posture, this

feature not only helps users avoid injuries but also guarantees an objective, consistent assessment devoid of human bias.

IV. TECHNOLOGY USED in YOGA:- Wearable devices with AI capabilities can track your heart rate, breathing patterns, and movement during yoga practice. This data can help you monitor your progress and ensure you stay within your target heart rate zone.

Student & faculty can use these Top 5 Devices for Yoga as Mind-Body Wellness

1. YogiFi Smart Yoga Mat

YogiFi is more than just a mat; it's a personal yoga journey tailored to your needs. It helps you track your progress in flexibility, balance, and strength, offering personalized programs created by certified yoga professionals. Whether you're a beginner or an advanced yogi, YogiFi adapts to your level, ensuring you get the most out of every session. The mat's compatibility with popular fitness devices like Fitbit and Apple Watch adds another layer of convenience, letting you track and compare your vitals before and after your workouts. Eco-friendly and travel ready, YogiFi is your perfect yoga partner, whether you're at home or on the go.

2. Yoga notch Wearable Sensors: Step into the future of yoga with Yoganotch, a wearable technology designed to bring a new level of precision to your yoga practice. This innovative system pairs a smartphone app with state-of-the-art 3D motion sensors, utilizing AI to analyze your yoga postures in real-time. It's like having a yoga coach with you, providing immediate feedback and personal cues to refine your poses.

3. PIVOT Yoga Smart Clothes

Transform your yoga practice with PIVOT yoga, where your clothing becomes your personal yoga guide. These aren't just any yoga clothes; they're embedded with sensors that wirelessly connect to the PIVOT Yoga app, offering real-time feedback and instructions as if you're in a studio class, but right in your living room. The PIVOT

Yoga garments are equipped with 16 sensors throughout, accurately tracking the location and movement of your major bones. This advanced technology provides detailed feedback on your alignment and posture. For example, it can tell you to adjust your arm by a few inches for the perfect Warrior Pose. These smart clothes combine high-tech functionality with comfort; they're lightweight, breathable, and designed to flatter different body types. Plus, they're machine washable and come with a built-in battery that lasts a week.

4. RESPA Yoga Breathing Sensor: - Breathe new life into your yoga practice with RESPA, the world's first yoga breathing sensor wearable. This innovative device shifts the focus to a crucial but often overlooked aspect of yoga: your breath. By tracking your breathing patterns, RESPA provides insights that can transform your practice, enhancing both physical postures and mental focus.

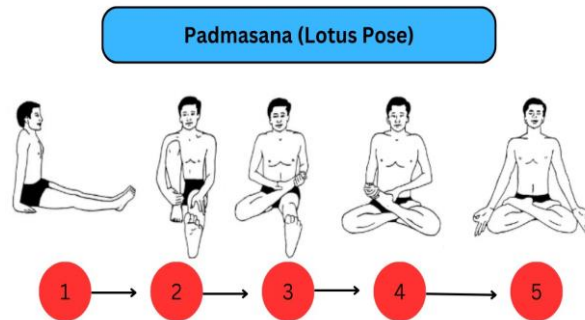
5. MUSE 2 Mindfulness Wearable: - Elevate your yoga practice with MUSE 2 , a wearable device designed to enhance your mindfulness and meditation. At the core of MUSE 2 lies an advanced EEG sensor that monitors the electrical activity in your brain, offering a unique perspective on your mental state during yoga and meditation.

V. Research Design and Methodology:

This section would typically analyze and compare research methods used in various studies. It would explore factors like Padmasana, Halasana, Bhramari Pranayama, Vrikshasana, & most important Asana for students is Surya namesake (Sun Salutations) Top Yoga Poses for the Students

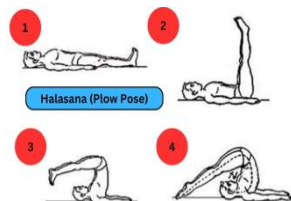
1. Padmasana (Lotus Pose)

It is an easy pose that will help you calm your mind and improve focus. This asana will help students enhance memory and concentration by promoting a state of tranquility.

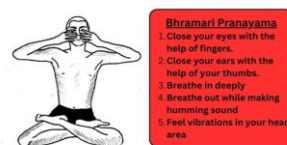


2. Halasana (Plow Pose)

Students can achieve balanced blood circulation to the brain and stimulate the nervous system by doing Halasana. Good blood circulation in the brain area improves brain functioning, which leads to sharp memory and great concentration. The nervous system carries nerve impulses, and thus its stimulation makes the person more active and efficient.

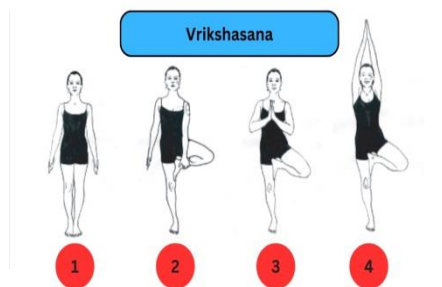


3. Bhramari Pranayama (Bee Breath) :- Bhramari Pranayama is an effective yoga asana that involves making a humming sound while breathing out. This helps make students calm and reduce stress. Enhanced concentration,



4. Vrikshasana (Tree Pose)

According to the theory of use and disuse, the more you use any part of the body, the more it develops. Thus, doing yoga regularly improves mental stability and reduces stress. Vrikshasana involves focusing on a single point, which will help students develop concentration. This pose also improves lower body strength.



5. Surya namesake (Sun Salutations): Surya namesake is a very famous yoga exercise that is the amalgamation of a series of yoga postures performed in a flow. There are a total of twelve postures synchronized with the breath. This yoga exercise is considered one of the most effective as it improves posture, flexibility, strength, concentration, balance, and overall vitality. Students should do this regularly in an open space with direct sunlight.



6. Meditation

It is one of the easiest yoga practices that students can do to calm the body and mind. In this pose, the person has to sit in a comfortable position and focus on the breath. One can use visualization techniques to boost mental retention.



7. Savasana (Corpse Pose)

This should be the final relaxation yoga posture. It helps integrate the benefits of all the yoga exercises. Doing this pose promotes complete relaxation, stress reduction, mental clarity, and focus



VI. Analysis as Algorithm can be used during yoga in college

Algorithm of Yoga Trainer with AI:

Step 1: Start

Step 2: Input from the user through a webcam or image.

Step 3: Input passed to Media pipe library.

Step 4: 33 Key point extraction from the person identified via the media pipe.

Step 5: If the user has chosen image classification, then with the help of the trained dataset, get the result through the Convolution Neural Networks

Step 6: If the user has chosen real-time classification via the web, then, classify the pose via the CNN algorithm and the random forest classifier.

Step 7: Based on the trained dataset the accuracy of the pose performed is calculated and errors are detected based on the coordinates obtained.

Step 8: The above algorithm is implemented using a website where the user interactions with the model are more convenient.

Step 9: The user data is stored in the database through which the accuracy and improvements that happened over time is monitored.

Step 10: Stop 5.

RESULTS AND ANALYSIS:-

The model-Yoga trainer with AI was tested through different stages so that the accuracy and functionality of the model increases. The model effectively the users to explore and learn about various yoga poses in this model. The user can perform the poses with live monitoring where the pose performed is sent to the system as an image or as a webcam feed is fed to media pipe to extract the body coordinates where the coordinates extracted are trained together and classified for pose identification as shown in the figure below. Then, the accuracy of the pose and the errors while performing are monitored and given to the user as an output. The output is stored along with user details so that the users can track their performance and improve.

While doing these yoga exercises, it is recommended to let your body feel the exercises properly with mindfulness. Remember, consistency is the key to achieving the desired goal, so doing these yoga poses regularly combined with a healthy lifestyle can help improve memory and concentration over time. For a better and safer yoga practice, guidance from a certified yoga instructor would be a great decision. Teachers and parents can suggest these yoga exercises to their children and students to improve flexibility and mental concentration. Make sure to have a healthy diet after you complete all these yoga asanas to get effective results. Let us celebrate every day as yoga day.

VII. CONCLUSION:

Yoga is an easy to perform exercise at home. But just following a video tutorial without a live instructor can be dangerous. Un-correct yoga poses can lead to various health issues like fractures, sprains, and muscle deformations thus, the need for Yoga Trainer with AI is seen. Angles between critical joints are computed using coordinates retrieved from the trained dataset. If a mismatch is detected, a text message and a voice message are output to guide users in making necessary adjustments to the current pose and eventually correcting the error.

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